Folio
UC-NRLF
A 2 527 813
SF

A REPORT TO THE CITY AND COUNTY OF SAN FRANCISCO

SAN FRANCISCO WESTERN FREEWAY

PHASE II: ROUTE LOCATION AND ECONOMIC STUDY

370
S256
1957
v.2
c.1

Wilbur Smith & Associates

Wilbur Smith & Associates

TRAFFIC — PARKING — TRANSIT — HIGHWAYS

495 ORANGE STREET
NEW HAVEN, CONN.

Mr. Sherman P. Duckel, Director
Department of Public Works
City and County of San Francisco
City Hall
San Francisco, California

September 10, 1958

Dear Mr. Duckel:

We are pleased to present herewith our report on the second and final phase of a comprehensive study of the San Francisco Western Freeway. Our report on the first phase of this study, concerned with the determination of need for the Western Freeway, was submitted to you on December 17, 1957. The total study was undertaken in accordance with our contract agreement of June 17, 1957.

The objective analyses made in this study indicate that a properly located Western Freeway will be a necessary part of an integrated system of transportation facilities in San Francisco, based on the desirability of high quality traffic services. Comparisons of relative traffic services, construction costs, right-of-way costs, property damages and other factors peculiar to this problem, indicate that the route designated Alternate A-Modified in this report is the most desirable location for the Western Freeway. This route is a modification of the route shown on the adopted Trafficways Plan for San Francisco. The recommended route, which would be about 6.5 miles in length, including connections to other freeways in San Francisco, would include a 5,300-foot tunnel beneath Sunset Heights, tunnel construction for all crossings of Golden Gate Park and depressed sections for most of the remainder of the route.

Numerous locations for the Western Freeway were considered. Detailed route location, traffic, and economic studies were made for the several feasible alternates, considering the Western Freeway as an important component of an integrated freeway system in San Francisco, and as a part of the federally designated National System of Interstate and Defense Highways. In the selection of routes, we have given principal emphasis to minimizing property damages and other adverse effects while maintaining required high standards of design. The special nature of this route location problem required that, to some extent, development costs and construction problems become secondary to the preservation of property values and general community amenities.

Although we have undertaken these studies with complete independence, we do wish to acknowledge the excellent cooperation received in the collection of basic data from various members of your staff, the Director of Property of the City and County of San Francisco, and the California State Division of Highways. Many other organizations and individuals furnished our project engineer, Mr. Gerard L. Drake, with valuable information and assistance which is also appreciated. It has been a pleasure to make this challenging study. We sincerely hope that the facts and analyses presented herein will facilitate a prompt and realistic decision.

Respectfully submitted,

WILBUR SMITH & ASSOCIATES

Henry K. Evans, Manager
Western Division

HKE:mk

Chapter IV
ALTERNATE ROUTES

Extensive field reconnaissance was undertaken to select specific locations for each of the several feasible routes for the Western Freeway. Large scale base maps, Sanborn maps indicating the locations and types of existing land developments, detailed topographic data furnished by the Bureau of Engineering, City of San Francisco, and US Geological Survey topographic maps of the study area were also employed in the location studies. Preliminary functional plans at a scale of 1" = 200' were prepared for the most feasible routes. Special studies were undertaken and large scale functional plans and profiles developed for principal interchanges. Although precise locations were selected for the route comparisons, a certain degree of flexibility exists regarding the location and design of any of the routes. It is to be expected that refinements and improvements will be made in the future phases of planning and design of the route finally selected.

Freeway Alternates

As discussed in Chapter I of this report, three alternate locations to the original Trafficways Plan Route for the Western Freeway were suggested for study. (A total of four alternates are to be analyzed in detail.) A fifth location for the freeway, which warranted further consideration, was developed in the preliminary route location studies mentioned above. The five alternate locations for the Western Freeway between Sloat Boulevard and Lincoln Way are as follows:

Alternate A - The Trafficways Plan Route

Alternate B - A Nineteenth Avenue Route located between Eighteenth and Nineteenth Avenues

Alternate C - A route along Sunset Boulevard

Alternate D - A route along the Great Highway.

Alternate E - A northerly extension of a route along Junipero Serra Boulevard located between Fourteenth and Fifteenth Avenues.

South of Sloat Boulevard, Alternates A, B and E would be located along Junipero Serra Boulevard, and thus connect directly with the presently proposed location of the Junipero Serra Freeway (the Interstate Route) south of the City limits. Alternates C and D could also be connected with the Junipero Serra Freeway, by developing freeway connectors along Stanley Drive and across Lake Merced. Although it is not within the scope of this study to select and compare locations for the Interstate freeway south of the San Francisco city limits, consideration was also given to the possibility of connecting Alternates C and D, the peripheral routes for the Western Freeway, to a freeway along Skyline Boulevard instead of Junipero Serra Boulevard in Daly City.

The necessary freeway connections between the northern ends of the five routes for the Western Freeway through the Sunset District and the Panhandle Freeway would be developed along one or both sides of Golden Gate Park as will be described in detail. The location of the Panhandle Freeway, an essential link between the Western Freeway and downtown San Francisco, is established within general limits, as shown on the official Trafficways Plan. Connections with the Park Presidio Freeway, requiring a new crossing of the park, would also be needed. It is assumed that the Park Presidio Freeway would be constructed along Park Presidio Boulevard; other locations were considered but found either undesirable or impractical.

Other alternatives, including a possible Twin Peaks vehicular tunnel connection to Market Street, were also considered. Although several of these alternatives have merit from the standpoint of traffic services, each has serious disadvantages because of practical, financial and general planning considerations. Each of the five feasible alternates listed above, and important modifications to the basic plans for Alternates A and C, are discussed in detail in the following paragraphs.

ALTERNATE A -- THE TRAFFICWAYS PLAN ROUTE

Route Description

The location of the Trafficways Plan Route (Alternate A) is shown schematically in Figure 18. Most of this route is included in the Trafficways Plan adopted by the San Francisco City Planning Commission in 1952; hence its name.

The Trafficways Plan Route would enter the City from the south along the existing right-of-way of Junipero Serra Boulevard as an extension of the planned Junipero Serra Freeway. High-speed direct-connections would be provided between the Junipero Serra Freeway and the Southern Freeway near the City limits. The Western Freeway would overpass Stanley Drive on the existing structure, where ramps would be provided for most movements. A new ramp would be constructed in the southeast quadrant of this interchange and minor changes in others would be made to conform to Interstate standards. Existing ramps in the northeast quadrant would be removed; the affected traffic movements could be accommodated by permitting left turns on Stanley Drive. North of Stanley Drive the freeway would be depressed, passing beneath Nineteenth Avenue, to which ramp connections would be provided for movements to and from the south. Construction of the northbound off-ramp to Nineteenth Avenue would require the acquisition of a number of small residences and a service station, since access to these buildings could not be maintained. The Park Merced property would be preserved by retaining wall construction. Since the freeway would pass beneath Nineteenth Avenue, there would be no elevated structures to obstruct the view of the apartments or otherwise effect the Park Merced area adversely.

Between Nineteenth Avenue and Sloat Boulevard, the freeway would be depressed along the existing right-of-way of Junipero Serra Boulevard. The existing access street on the west side of the boulevard would be maintained. On the east side of the boulevard, between Nineteenth Avenue and Holloway Avenue, properties do not have access to Junipero Serra Boulevard, but instead face Beverly Street, thus ob-

LOCATION PLAN

THE TRAFFICWAYS PLAN ROUTE
ALTERNATE A AND ALTERNATE A-MODIFIED

Wilbur Smith & Associates

FIGURE 18

viating the need for a frontage road in this section. A retaining wall would be constructed to preserve the buildings of the Temple Methodist Church in the northeast quadrant of the Nineteenth Avenue-Junipero Serra Boulevard interchange.

At Holloway Avenue a half diamond-type interchange would be provided for trips to and from the north, generated by San Francisco State College, Park Merced, Stonestown and residential areas east and west of the freeway south of Ocean Avenue. Holloway Avenue would be carried over the freeway at about present grade level. The freeway would pass beneath Winston Drive, Ocean Avenue and St. Francis Circle where an interchange would be provided to integrate the freeway with Sloat Boulevard and Portola Drive. Since properties on the east side of Junipero Serra Boulevard between Holloway Avenue and St. Francis Circle generally face the boulevard, local access must be provided. At present a very narrow lane provides this access. It would be necessary to widen this lane to provide an adequate frontage road for increased local traffic movement caused by the control of access to Junipero Serra Boulevard and the elimination of connections to Ocean Avenue and other intermediate streets in this section of the route. The widening for this frontage road would require some property acquisition. In some cases, this acquisition would involve only several feet of front lawn; in several cases, the entire property would be acquired. However, costly retaining wall construction could be employed to virtually eliminate the moderate property damages in this section of the route.

The construction of the interchange at St. Francis Circle would require the acquisition of a considerable number of properties. Although traffic movements at this interchange would be heavy, the plan shown in this report has been simplified as much as possible to minimize property damages. West Portal Avenue would be terminated just southwest of Fourteenth Avenue and the Municipal Railway streetcar tracks would be relocated to connect with Ocean Avenue west of the freeway. It is recommended that St. Francis Boulevard be terminated at St. Francis Circle with access to this exclusive residential section provided by the several streets leading off Portola Drive. This street closure would be desirable to minimize through traffic movements and to eliminate traffic conflicts at the St. Francis Circle interchange; this street closure is not essential to the basic plan, however.

North of St. Francis Circle, extensive property damages would be involved in the construction of the Trafficways Plan Route. The block between Fourteenth and Fifteenth Avenues, as far north as Santiago Street, would be acquired for the construction of a depressed freeway, employing the adjacent streets for property access and local traffic movements. These two streets could be converted to one-way operation to simplify traffic conflicts at points of contact with freeway ramps. Interchange connections for traffic to and from the north would be provided at Taraval Street, an important east-west arterial.

North of Santiago Street, the Trafficways Plan Route would bear to the northeast. A 3,700-foot section between Santiago Street and Seventh Avenue near the Laguna Honda Reservoir would be constructed as a twin-tube tunnel, built beneath the surface to preserve the residential properties above. Easements would be required for this tunnel construction. High-speed direct-connections would be provided to the Crosstown Freeway, if constructed, or to Laguna Honda Boulevard.[6]

North of the tunnel portal at Seventh Avenue, Alternate A for the Western Freeway would follow relatively undeveloped properties at the base of Mt. Sutro to a location between Kirkham Street and Lincoln Way where a freeway junction with high-speed direct-connection ramps requiring a large area would be constructed to link the Western, Park Presidio, and Panhandle Freeways. Considerable property acquisition would be necessary for this major interchange. The northwest freeway link with the Park Presidio Freeway would be constructed through Golden Gate Park by "cut-and-cover" methods; the freeway would be depressed and covered with park landscaping restored. The park crossing would not destroy important park structures or principal areas of visitation. Interchange connections would be provided at the intersection of the freeway with Fulton Street. Connections could also be provided to State Route 1, or this existing park crossing could revert to park and local use only. The northeast freeway link between the freeway junction and the Panhandle

6 A report including preliminary plans for the Crosstown Freeway, prepared by DeLeuw-Cather and Company, was not available when plans for the Western Freeway were prepared. Some adjustments would be necessary at the interchange between these two freeways which would not affect analyses in this report.

Freeway would be constructed beneath the existing park road around the north side of Kezar Stadium. This section of Alternate A would pass beneath Stanyan Street and connect with the previously planned Panhandle Freeway just west of Masonic Avenue (based on the junction of these freeway assumed for this report). Although final studies of the Panhandle Freeway have not been completed by local officials, one plan would call for a location along existing Oak Street and properties south of this street; Oak Street itself would be relocated to parallel the south side of the freeway to provide local traffic services.

Modified Trafficways Plan Route

A modification of the Trafficways Plan Route, designated as Alternate A-Modified, is also possible which would reduce right-of-way damages required with Alternate A, although it would be much more costly to construct. The modification would involve the construction of a longer tunnel, about 5,300 feet in length, from a point north of St. Francis Circle near Wawona Street, to the junction with the Crosstown Freeway, or Laguna Honda Boulevard, near the Laguna Honda Reservoir. The connections to Taraval Street would be eliminated with this modification resulting in slightly lesser traffic services. However, the extensive damages to properties between Fourteenth and Fifteenth Avenues, otherwise required with the Trafficways Plan Route, would be avoided. The location of Alternate A-Modified is also shown schematically in Figure 18.

Design Details

The high standards of design prescribed for the National System of Interstate and Defense Highways were generally maintained in the development of functional plans for Alternate A and Alternate A-Modified. Specific details regarding the alignment and cross-section design of these alternates are as follows:

1. *Design Speed:* The design speed for all through freeway lanes is 60 miles per hour except for the ramps in the major interchange between the Western, Park Presidio and Panhandle Freeways where a minimum 50 miles per hour design was used.

2. *Sight Distance:* The minimum non-passing sight distance, the distance required for a vehicle traveling at the design speed to stop before reaching an object in its path, is 475 feet.

3. *Horizontal Curvature:* The maximum horizontal curvature used is 5 degrees, a radius of 1,150 feet, except at the major freeway junction where 6-1/2 degree curves of 880 feet were used for ramps serving major movements; several 13-1/2 degree curves of 420 feet were necessary for ramps serving minor movements.

4. *Grades:* The maximum grade used for the main roadway is 3.1 percent; grades are generally considerably less than this maximum. The maximum grade in the 3,700-foot tunnel section of Alternate A is 2.4 percent which would not adversely affect the traffic capacity of the tunnel to a significant degree. The maximum grade in the longer tunnel section of Alternate A-Modified would be only about 2.0 percent.

5. *Lane Width:* Through traffic lanes on the freeway are 12 feet wide, as are acceleration and deceleration lanes. Single lane ramps in tangent are 16 feet wide.

6. *Medians:* A 22-foot median, including a 4-foot raised barrier, is used in the depressed section of Alternate A between Sloat Boulevard and the south tunnel portal, and in other sections where right-of-way conditions permit. For other depressed sections,

including that along Junipero Serra Boulevard, a 10-foot median is employed. It is desirable to provide a 22-foot median where feasible because operational experience indicates that motorists in disabled vehicles in the left lanes have great difficulty in gaining access to the right shoulders during periods of heavy traffic flow. A single stopped vehicle in the through traffic lanes of a freeway during a peak travel period can cause extreme congestion and even complete breakdown of traffic flow. A left shoulder can be provided with a 22-foot median.

7. *Shoulders:* Paved right shoulders, 12 feet wide, including a 2-foot curb and gutter section, are used except for the tunnel sections. Where a 22-foot median is employed, a 9-foot paved area is also provided on the left side of each roadway. A 2-foot paved strip is provided on the left side of each roadway where a 10-foot median is used.

Typical Roadway Cross Sections

The main roadways of Alternate A and Alternate A-Modified include six lanes south of the interchange with the Crosstown Freeway. Eight lanes are provided between this location and the Panhandle Freeway. The connection with the Park Presidio Freeway includes six lanes.

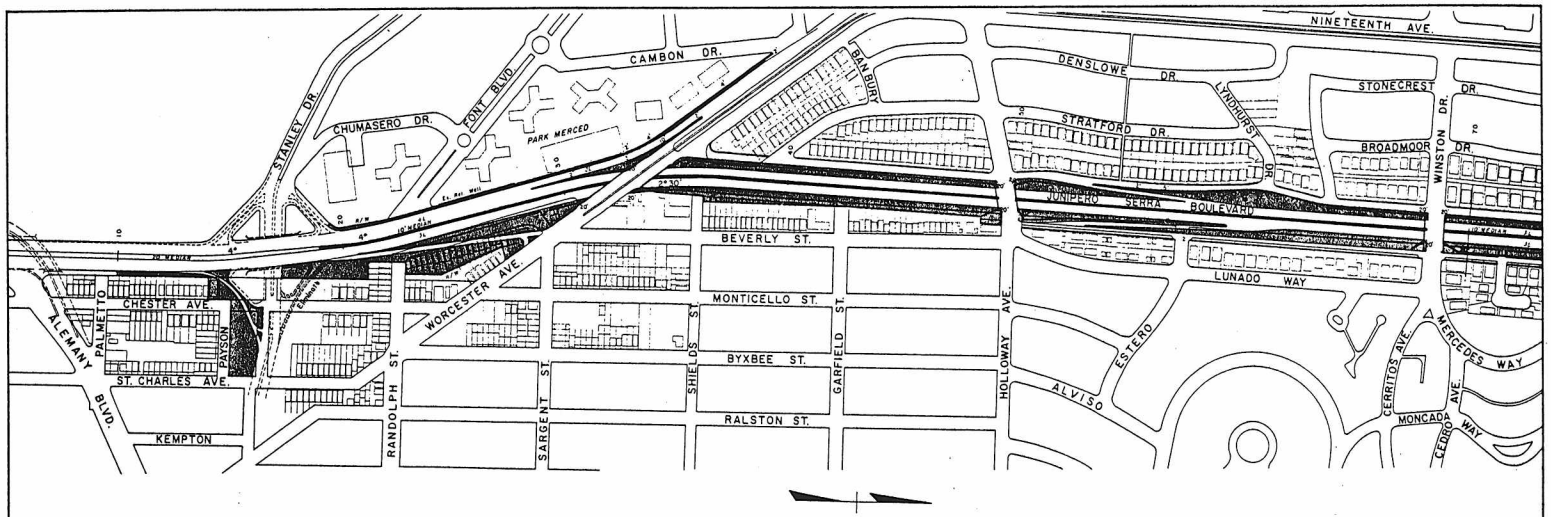
Figure 19 shows typical roadway cross sections used in the preliminary plans for Alternate A, and Alternate A-Modified. Typical treatments for depressed sections involving side slopes and side wall construction are both shown. Half-sections of the twin-tube tunnel are shown in Figure 20. The center lines of these tubes would be 119 feet apart. Each tube would provide a clear width of 48 feet, including 42 feet between curbs for three lanes of traffic, a 4-foot right shoulder, and a 2-foot left shoulder. Additional width is provided for a raised walkway. These tubes would be constructed by boring methods. Ventilation would be provided by mechanical means.

Typical Structure Sections

Figures 20 and 21 indicate typical structure cross sections used for the various alternates for the Western Freeway. The typical section for a two-way cut-and cover connector through Golden Gate Park, shown in Figure 21, was used in the preliminary design of Alternates A and A-Modified.

Detailed Functional Plans and Profiles

Functional plans and profiles showing details of the location and design of Alternate A and Alternate A-Modified, as developed in these studies, are presented in Figures 22 through 30 on the following pages.



FUNCTIONAL PLAN

TRAFFICWAYS PLAN ROUTE ALTERNATE A

SCALE 1"= 400' SHEET NO. A-1

Wilbur Smith & Associates

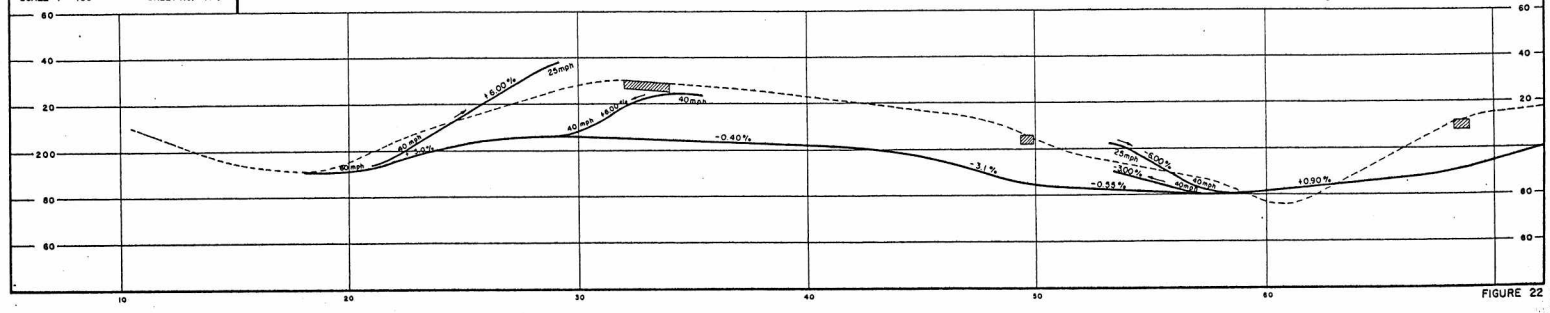
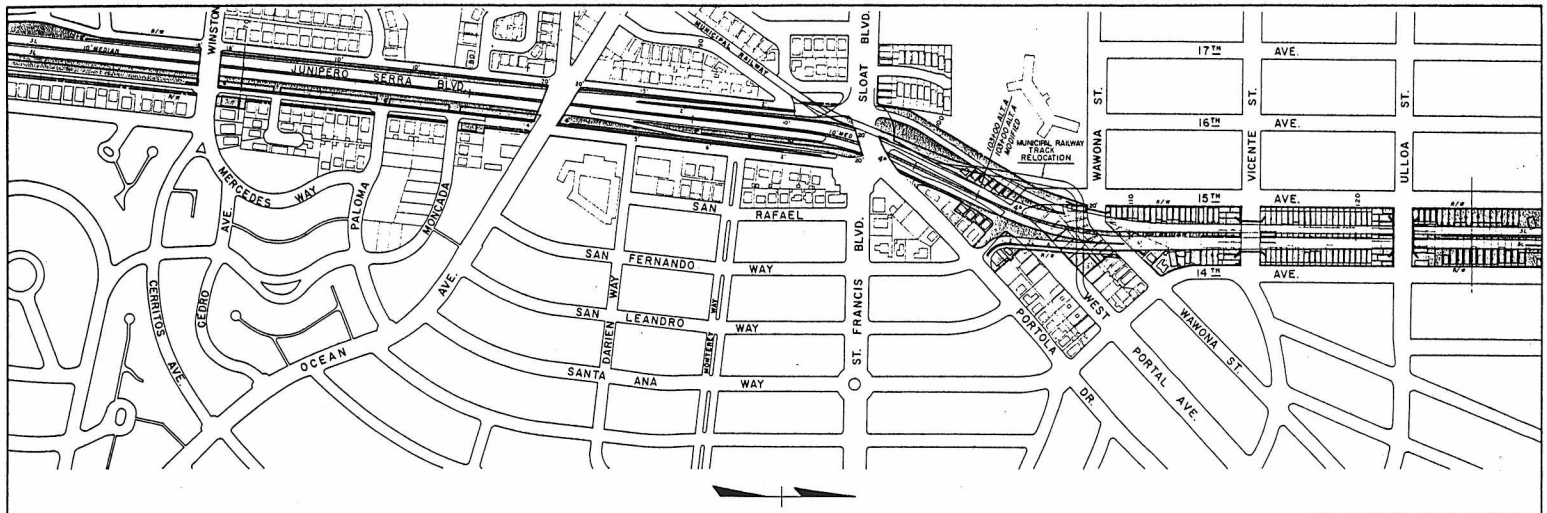


FIGURE 22



FUNCTIONAL PLAN

TRAFFICWAYS PLAN ROUTE

ALTERNATE A

SCALE 1"= 400' SHEET NO. A-2

Wilbur Smith & Associates

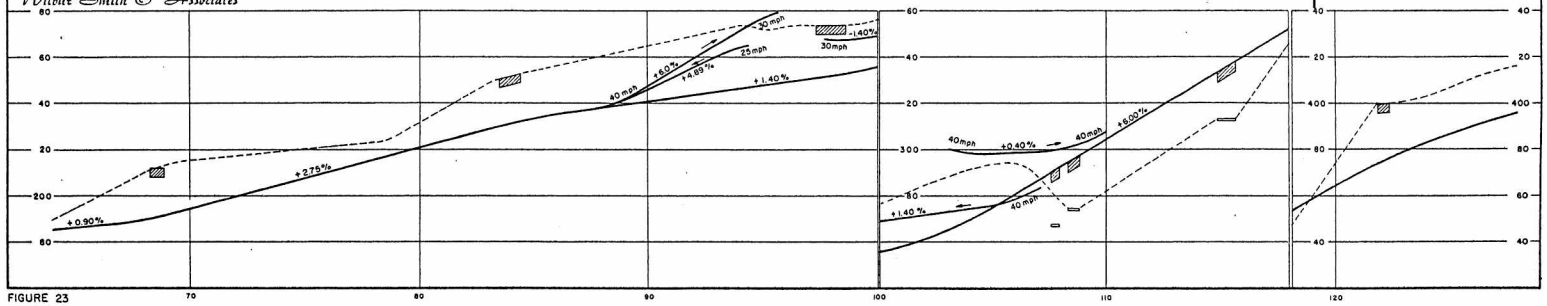


FIGURE 23

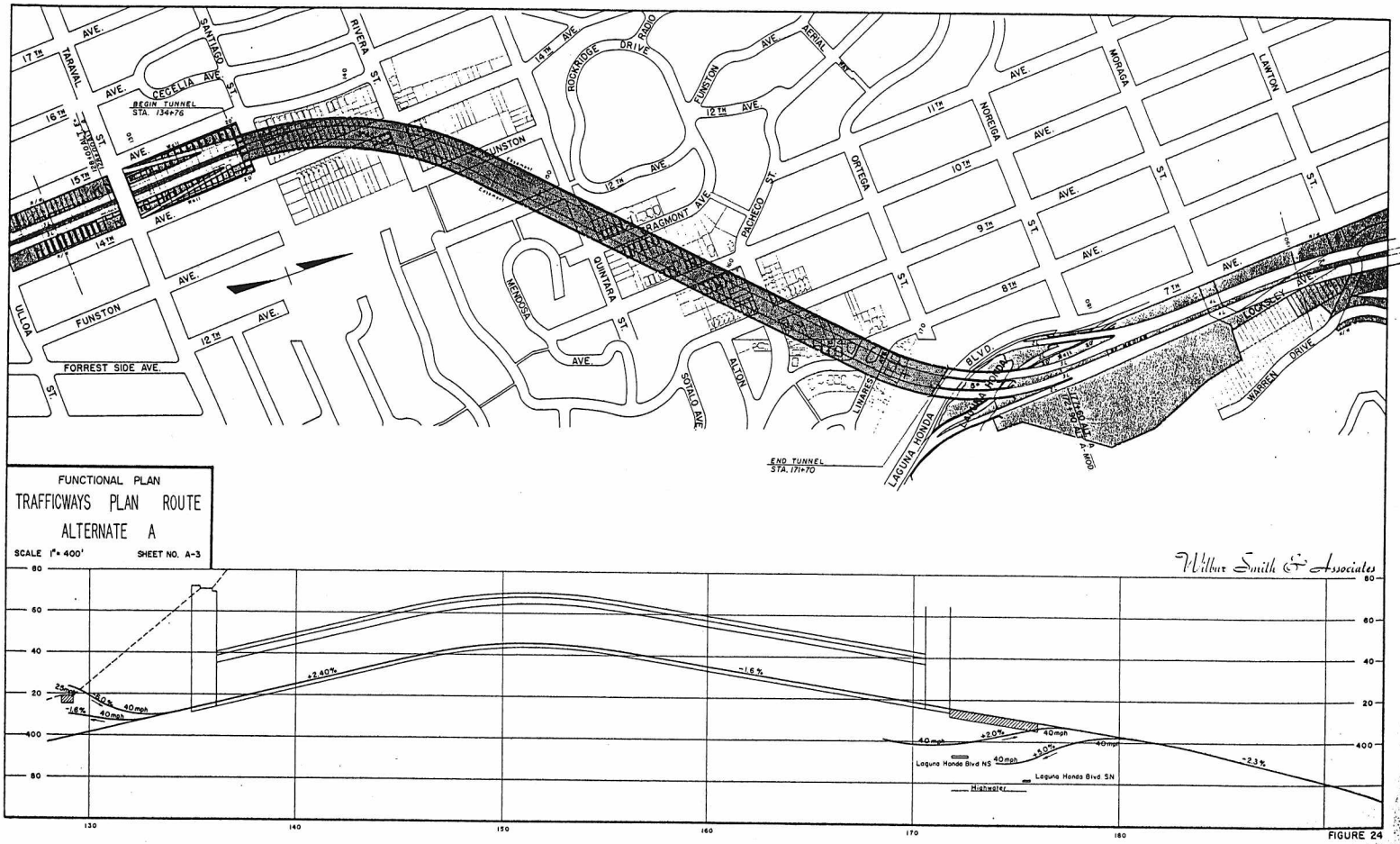
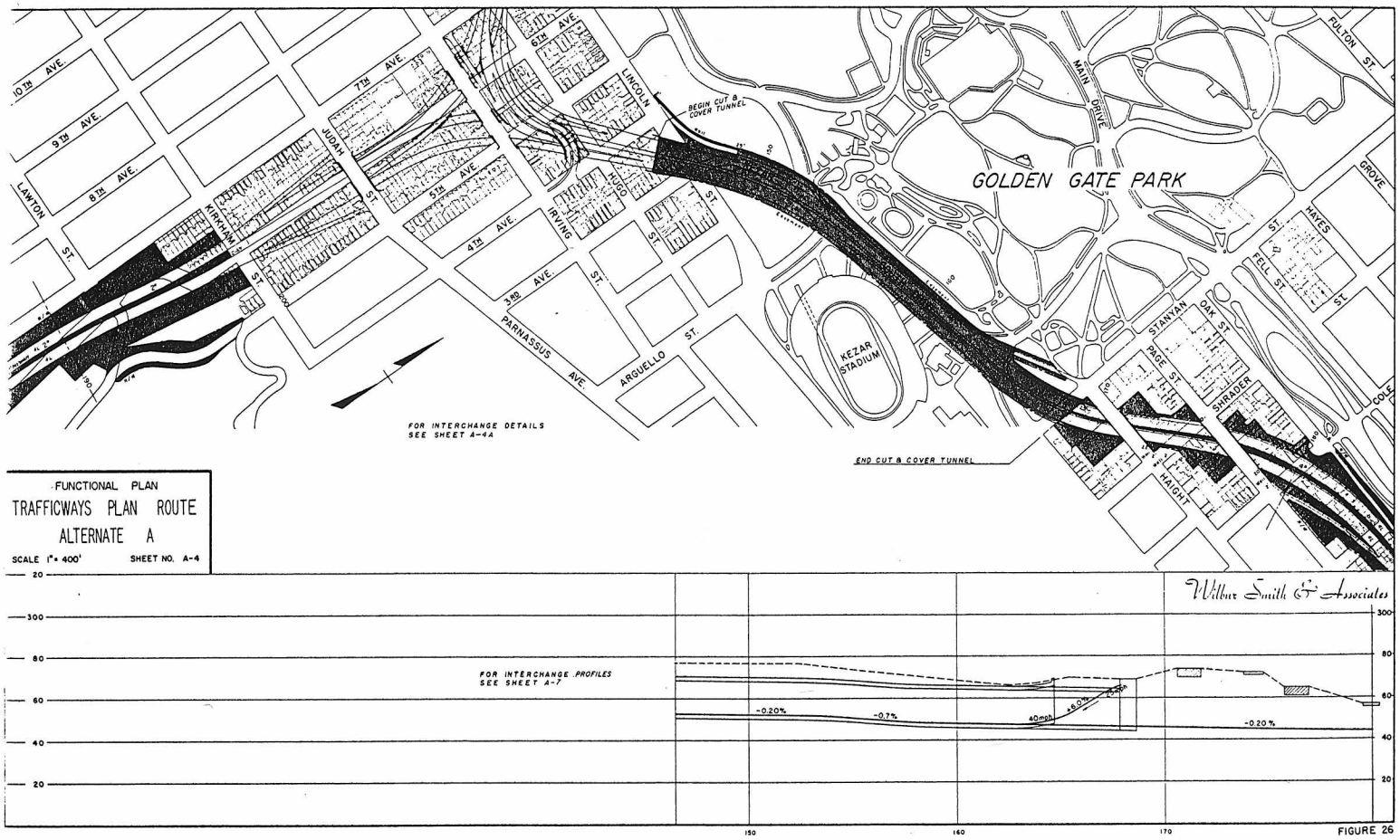

FUNCTIONAL PLAN
TRAFFICWAYS PLAN ROUTE
ALTERNATE A
SCALE 1"= 400'
SHEET NO. A-3
BEGIN TUNNEL
STA. 134+76
END TUNNEL
STA. 171+70
CEGELIA AVE.
FUNSTON
FORREST SIDE AVE.
ULLOA
TARAVAL
SANTIAGO ST.
RIVERA ST.
ROCKRIDGE DRIVE
RADIO
AERIAL
MORAGA
LAWTON
OPTEGA
PACHECO ST.
QUINTARA
MERCEDES
SOTELO AVE.
ALTON
LINARES
LAGUNA HONDA BLVD.
WARREN DRIVE
Laguna Honda Blvd NS
Laguna Honda Blvd SN
Highwater
+2.40%
-1.6%
-2.3%
+2.0%
+3.0%
40mph
Wilbur Smith & Associates

FIGURE 24

103+00 ALT A -
103+00 ALT A MOD.
MUNICIPAL RAILWAY
TRACK RELOCATION
WANONA ST.
VICENTE ST.
ULLOA ST.
TARAVAL ST.
RIVERA ST.
15TH AVE.
14TH AVE.
FUNSTON AVE.
BEGIN TUNNEL
STA 113+00
WEST PORTAL AVE.
PORTOLA DRIVE
12TH AVE.
MENDOSA
QUINTARA ST.
CRAGMONT AVE.
11TH AVE.
10TH AVE.
9TH AVE.
8TH AVE.
PACHECO ST.
ORTEGA ST.
172+90 ALT A-MOD
177+60 ALT A
SOTOLA AVE.
BLVD.
END TUNNEL
STA 166+50
LAGUNA HONDA
LAGUNA HONDA RESERVOIR
Wilbur Smith & Associates
TIE TO ALT A PROFILE
-6.0%
40 mph
-0.9%
40 mph
LINE A1
+1.4%
+2.0%
TIE TO ALT A PROFILE
-1.6%
FUNCTIONAL PLAN
TRAFFICWAYS PLAN ROUTE
ALTERNATE A MODIFIED
SCALE 1"= 400' SHEET NO. A-1 MODIFIED

FIGURE 25



FUNCTIONAL PLAN

TRAFFICWAYS PLAN ROUTE

ALTERNATE A

SCALE 1" = 400' SHEET NO. A-4

Wilbur Smith & Associates

FIGURE 26

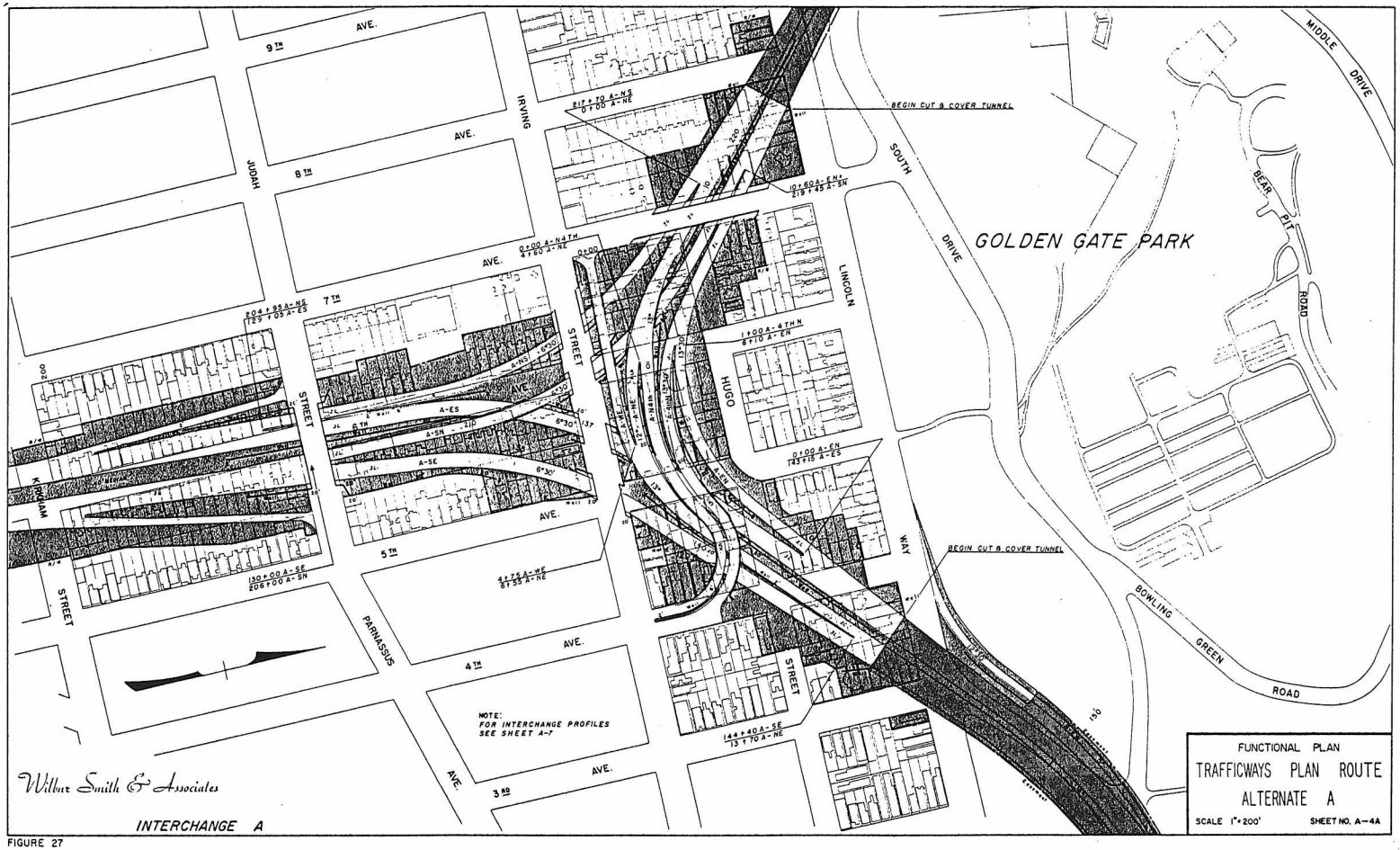
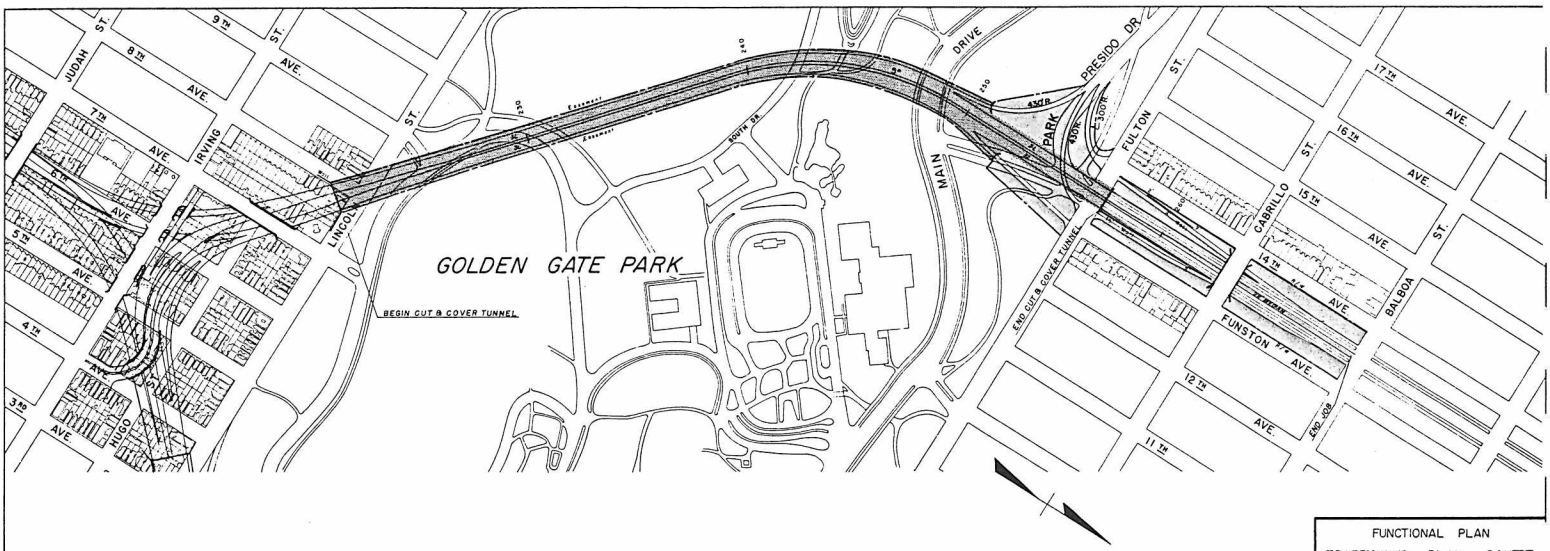

GOLDEN GATE PARK
BEGIN CUT & COVER TUNNEL
BEGIN CUT & COVER TUNNEL
NOTE:
FOR INTERCHANGE PROFILES
SEE SHEET A-7
Wilbur Smith & Associates
INTERCHANGE A
FUNCTIONAL PLAN
TRAFFICWAYS PLAN ROUTE
ALTERNATE A
SCALE 1"=200'
SHEET NO. A-4A

FIGURE 27

SHRADER ST.
COLE ST.
CLAYTON ST.
ASHBURY ST.
MASONIC ST.
CENTRAL ST.
LYON ST.
BAKER ST.
BRODERICK ST.
DIVISIDERO ST.
SCOTT ST.
STEINER ST.
FILLMORE ST.
FELL ST.
PIERCE ST.
OAK ST.
PAGE ST.
HAIGHT ST.
END JOB 182+00 ALT A
189+65 STATE PLAN
FUNCTIONAL PLAN
TRAFFICWAYS PLAN ROUTE
ALTERNATE A
SCALE 1"= 400'
SHEET NO. A-5
Wilbur Smith & Associat
20
200
80
60
40
20
40mph
-3.0%
-1.0%
-0.50%
-1.6%
180
190

FIGUR



FUNCTIONAL PLAN

TRAFFICWAYS PLAN ROUTE

ALTERNATE A

SCALE 1" = 400' SHEET NO. A-6

FOR INTERCHANGE DETAILS
SEE SHEET E-4A

Wilbur Smith & Associates

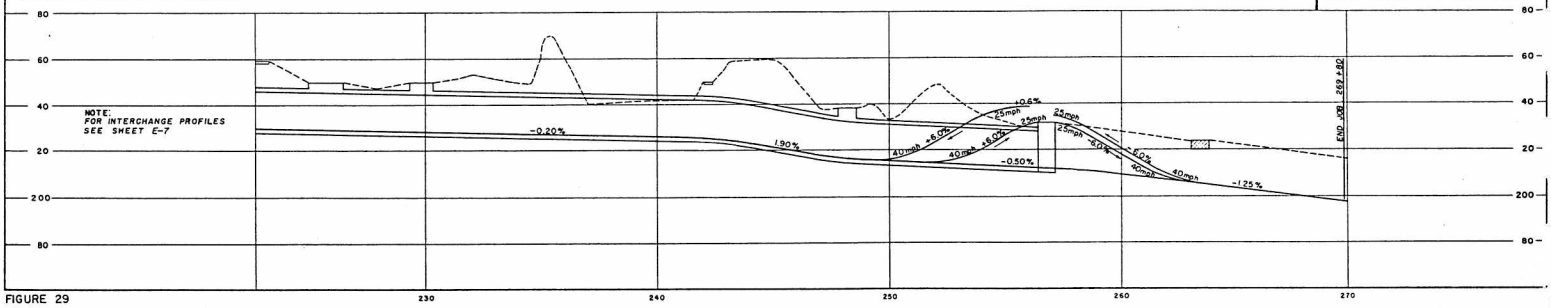


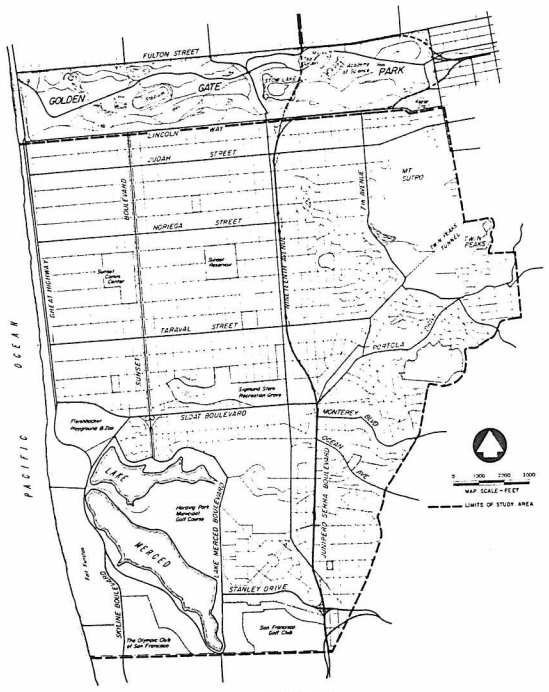
FIGURE 29

ALTERNATE B -- THE NINETEENTH AVENUE ROUTE

The Nineteenth Avenue Route for the Western Freeway is another route suggested by some residents. This is the present route of State Route 1 through the Sunset District. The width of available right-of-way on Nineteenth Avenue north of Sloat Boulevard, equal to about 100 feet, is insufficient for the construction of a depressed freeway. Access streets would have to be provided on both sides of the limited-access freeway to provide for property access. About 200 feet of right-of-way would be required. Two-level freeway construction would be physically possible, but is considered highly undesirable because of problems of providing access connections and possible adverse affects on adjacent properties. Therefore, a freeway along this route would require the removal of properties on one side or the other of Nineteenth Avenue. Acquisition costs and other adverse effects would be less severe if the easterly side were taken for the freeway. In consideration of the right-of-way width required, the effects on properties and the desirability of maintaining Nineteenth Avenue as a local arterial, a Western Freeway along this route would probably be constructed as a depressed freeway with landscaped slopes in the entire block between Eighteenth and Nineteenth Avenues. This is the plan used as a basis for these comparative studies.

Route Description

The route of Alternate B is indicated schematically in Figure 31. Between the south City limits and St. Francis Circle, Alternate B would be common with the Trafficways Plan Route. The connection between the Eighteenth-Nineteenth Avenue location described above, and the line along Junipero Serra Boulevard would pass just north and east of both the buildings of the Christian Science Benevolent Association and the St. Cecilia Church in the block between Vicente and Ulloa east of Eighteenth Avenue. Interchange connections would be provided at Sloat Boulevard, Lincoln Way, and at several intermediate locations. Property damages for the section of this route between Sloat Boulevard and Lincoln Way would be extremely great.



LOCATION PLAN

THE NINETEENTH AVENUE ROUTE
ALTERNATE B

Wilbur Smith & Associates

FIGURE 31

The Nineteenth Avenue Route would be connected with the Park Presidio Freeway via a new freeway connector across Golden Gate Park east of Stow Lake. This crossing would be constructed by cut-and-cover methods; the existing park landscaping would be restored as much as practicable. The connections to the Panhandle Freeway could be achieved by the development of one-way freeways along Lincoln Way (eastbound) and Fulton Street (westbound) to minimize property damages in this area. This plan is shown schematically in Figure 31 and will be discussed in more detail in connection with Alternate C.

Design Details

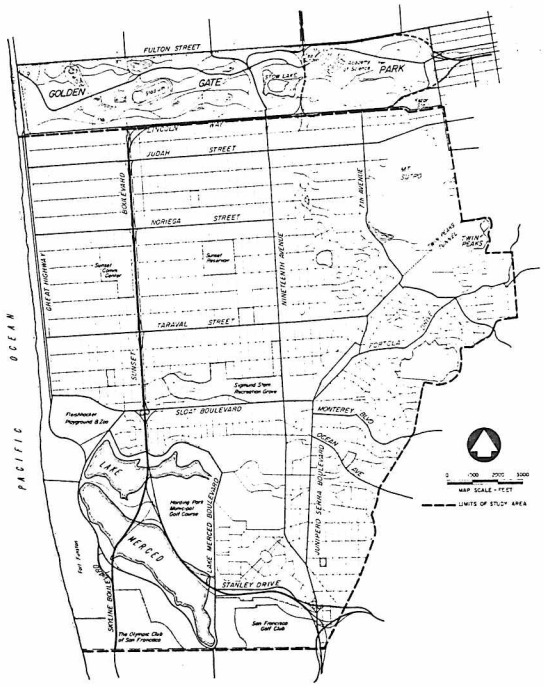
Details of design for Alternate B would be comparable to those previously described for Alternate A. A design speed of 60 miles per hour would be maintained except for ramps connecting the Western Freeway with the Panhandle Freeway where 6 degree curves, adequate for speeds of 50 miles per hour, would be used. The typical roadway section which includes a 22-foot median, illustrated in Figure 19, would be used for Alternate B north of Sloat Boulevard. Structure cross-sections, shown in Figures 20 and 21, would be typical of those used for this alternate. Detailed functional plans for the Nineteenth Avenue Route were not prepared.

ALTERNATE C -- THE SUNSET BOULEVARD ROUTE

The development of a freeway along the existing right-of-way of Sunset Boulevard would not be difficult. This is true largely because the necessary parallel access streets for local traffic services are readily available in Thirty-sixth and Thirty-seventh Avenues, and because the two existing 27-foot roadways can each be widened as necessary for three freeway lanes by eliminating the existing equestrian and pedestrian paths. The principal problems with Alternate C, the Sunset Boulevard Route, do not lie in the section along Sunset Boulevard, but in making connections between this location and the other elements of the San Francisco freeway system.

Route Description

The Sunset Boulevard Route for the Western Freeway is depicted schematically in Figure 32. Assuming that this route would connect with a freeway route in



LOCATION PLAN

THE SUNSET BOULEVARD ROUTE
ALTERNATE C

Wilbur Smith & Associates

FIGURE 32

San Mateo County along Junipero Serra Boulevard, it would be necessary to make this connection by crossing Lake Merced and Harding Park Municipal Golf Course. It would not be possible to maintain Interstate design standards for a route following Lake Merced Boulevard around the lake and the golf course. Following Alternate C from south to north as developed for these studies, a new interchange providing direct connections between the freeway and Junipero Serra Boulevard would be constructed just south of the existing interchange between Stanley Drive and Junipero Serra Boulevard. The existing cloverleaf interchange would not permit the high design speeds necessary on the main roadway and, therefore, must be supplemented by new direct connections. Direct ramp connections to the Southern Freeway via Stanley Drive would also be provided at the new interchange. Stanley Drive would be retained for local traffic services west of Junipero Serra Boulevard. Alternate C would be constructed on the south side of Stanley Drive, necessitating the acquisition of undeveloped church properties. The St. Thomas More Church and School buildings would be preserved, although a portion of a parking area would be acquired.

The Sunset Boulevard Route for the Western Freeway would overpass Lake Merced Boulevard at the southwest corner of Park Merced, where interchange connections would be provided. The freeway would pass between Lake Merced and Harding Park Municipal Golf Course, cross the lake at a narrow throat in the north lagoon and become depressed to pass beneath Sloat Boulevard. Although a reorientation of the golf course would be involved, the course could be preserved. Some relocation of the north shore of the main body of Lake Merced would also be necessary. The existing structure at Sloat Boulevard would be utilized and interchange ramps would be constructed to provide for all traffic movements.

The Sunset Boulevard Route would be constructed as a depressed freeway for almost the entire distance between Sloat Boulevard and Lincoln Way. Intermediate diamond-type interchanges would be constructed at Taraval and Noriega Streets, and a half diamond-type connection at Judah Street for maximum traffic services to the local area. These streets and other principal east-west streets would be carried over the freeway at about present grade level to minimize the "barrier-effect" of the freeway on local east-west traffic movements. Because of the numerous grade separations with intersecting streets along Sunset Boulevard, future east-west traffic would move more easily and with more safety than today. Separations would be provided at Vicente, Taraval, Rivera, Ortega, Noriega, Lawton, Judah and Irving Streets in addition to those at Lincoln Way and Sloat Boulevard.

Regardless of the route selected for the Western Freeway, a new freeway crossing of Golden Gate Park would be located east of Stow Lake to provide for maximum traffic services to local traffic and the most desirable connection to the Park Presidio Freeway and the Golden Gate Bridge. If additional encroachment on Golden Gate Park is to be avoided, the east-west limited-access connector between Sunset Boulevard and the new park crossing would have to be constructed on the right-of-way of Lincoln Way and developed properties south of Lincoln Way. Approximately one-fifth of the block between Lincoln Way and Irving Street would be required for the freeway and a local service street. High-speed direct connections would be constructed between Sunset Boulevard and the Lincoln Way connector; access to the park would also be provided at this location. Ramp connections to Nineteenth Avenue would also be provided in the south quadrants.

The east-west portion of Alternate C, east of the new limited-access crossing of Golden Gate Park could be continued along Lincoln Way as described above to about Third Avenue. At this location, the freeway would be routed north of Kezar Stadium and would be constructed beneath the existing park drive. An alternate to this plan was developed in these studies, consisting of one-way limited-access connectors along Lincoln Way and Fulton Street. This plan is shown schematically in Figure 32. The development of one-way, limited-access connectors would make possible the preservation of residential and commercial properties along this section of Lincoln Way at the expense of moderate encroachment on Golden Gate Park. The southern half of Lincoln Way, including a total of 43 feet for a sidewalk and a street for local traffic distribution, would be preserved. This street would be separated from the freeway by a 10-foot raised median in which a suitable screen of shrubbery could be planted. The one-way freeway roadway could be constructed to provide four lanes of traffic plus a narrow shoulder, or three lanes of traffic plus a full shoulder. A strip of Golden Gate Park about 28 feet in width would be required for this design ex-

clusive of landscaped side slopes of variable width. The same type of construction would be employed along Fulton Street. The one-way limited-access connectors would be constructed through the eastern portion of Golden Gate Park by cut-and-cover methods. They would join one another at about Cole Street, south of the panhandle of Golden Gate Park, and connect with the Panhandle Freeway near Masonic Avenue.

High-type direct-connections would be provided to integrate the one-way freeway connectors with the new park crossing and the Park Presidio Freeway. Connections would also be provided between the east-bound freeway and Seventh Avenue (and South Drive in Golden Gate Park), Lincoln Way at Third Street, Stanyan Street, and Page Street at Cole. The westbound freeway would be served by connections to Oak Street, Stanyan Street, and Fulton Street near Arguello.

Alternate C - Modified

It is understood through conferences with various local officials and other interested parties that encroachments on Golden Gate Park for freeway construction other than for the new crossings already approved, would probably not be acceptable. This advice is supported by past decisions against lesser encroachments on the park than those necessary for freeway construction. Nevertheless, if substantial encroachment on Golden Gate Park could be considered, there does exist an alternate plan for the accomplishment of the east-west connection between Sunset Boulevard and the Park Presidio and Panhandle Freeways. This alternative, designated as Alternate C - Modified, would involve the development of the one-way limited-access connectors along Lincoln Way and Fulton Street for the entire distance between Sunset Boulevard and the Panhandle Freeway. In addition to the acquisition of strips of the park along Lincoln Way and Fulton Street, a second park crossing would be required between Sunset Boulevard and Fulton Street at about Fortieth Avenue. This modification of the basic Sunset Boulevard Route previously described would make possible the preservation of many residential and commercial buildings at the expense of encroachment on the park and some adverse effects on local traffic distribution.

Connections to Skyline Boulevard

The growing importance of Skyline Boulevard would make it desirable to integrate the Sunset Boulevard Route with this westernmost approach to the City. A freeway along Skyline Boulevard through Daly City would join the adopted route for the Interstate freeway in San Mateo County at about San Bruno Avenue, only a few miles south of the San Francisco City limits. Skyline Boulevard is already constructed to expressway standards through Daly City, and in San Francisco to the vicinity of Sloat Boulevard. Improvement of this route south of Daly City is also in progress, as well as a new limited-access connection to the Coast Highway. Future growth in San Mateo County in areas tributary to Skyline Boulevard will make this route take on added significance in future years.

A possible connection between Sunset Boulevard and Skyline Boulevard, designed to the high standards of design used for the remainder of Alternate C, is shown schematically in Figure 32. This high-type connection could be integrated with the previously described connection with the Junipero Serra Freeway; the Skyline Boulevard Connector would be essential if the connection to the Junipero Serra Freeway were omitted.

Design Details

Specific details regarding the alignment and cross-section design of Alternate C and Alternate C-Modified are as follows:

1. *Design Speed:* The design speed for through freeway lanes is 60 miles per hour except for the direct connections with the new

crossing of Golden Gate Park, the ramps between Sunset Boulevard and the location along Lincoln Way, and the ramp for movements from the Junipero Serra Freeway to the section of the Sunset Boulevard Route along Stanley Drive. These direct connections were designed for speeds of 50 miles per hour.

2. *Sight Distance:* The minimum non-passing sight distance on Alternate C is 475 feet.

3. *Horizontal Curvature:* The maximum horizontal curvature used for through freeway lanes is 8 degrees, corresponding to a radius of 720 feet. This curvature was used only at the interchanges with the new park crossing, and the ramp between the freeway sections along Sunset Boulevard and Lincoln Way. Six degree curves, with 960-foot radii, were used for the direct connections with the Junipero Serra Freeway.

4. *Grades:* A maximum 6 percent grade is necessary at several locations along the routes of Alternate C and Alternate C-Modified. The maximum grade along Sunset Boulevard is about 3.9 percent.

5. *Lane Width:* Through traffic lanes are 12 feet wide. Other standards of lane width are also identical to those used in the design of other alternates.

6. *Medians:* A 22-foot median is used for the sections of Alternate C along Sunset Boulevard and along Lincoln Way west of the crossing of Golden Gate Park. East of the park crossing, where one-way freeway connectors are indicated, the freeway would be separated from a local access street by a 10-foot median including screen plantings. This design would be employed for the entire distance between Sunset Boulevard and about Third Avenue with Alternate C-Modified.

7. *Shoulders:* Where the 22-foot median is employed, a 9-foot paved area is provided on the left side of each roadway, in addition to the 12-foot right shoulder which includes a 2-foot curb and gutter section. For the one-way connectors along each side of the park, 48-foot roadways with a 2-foot shoulder could be provided, or the capacity of the main roadway could be reduced by providing only 36 feet for three lanes of traffic plus full shoulders. Each of these one-way connectors should provide for four lanes of traffic east of the park crossing to connect the Western Freeway with the Park Presidio Freeway; west of this location, traffic demands would be satisfied by provision of a total of six lanes for through freeway traffic.

Typical Roadway Cross Sections

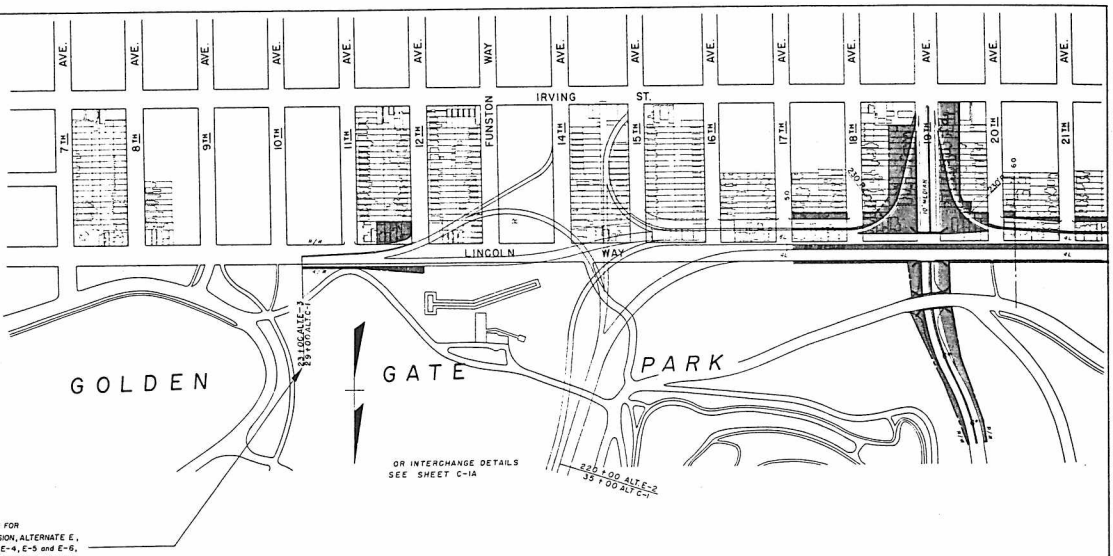
Figure 33 indicates typical roadway cross sections used for the one-way limited-access connections along Lincoln Way and Fulton Street. The depressed freeway sections shown in Figure 19 were used for other portions of Alternate C and Alternate C-Modified.

Typical Structure Sections

Typical structure cross sections shown in Figures 20 and 21 were employed in the planning of the Sunset Boulevard Route. Typical sections used for the cut-and-cover connectors through Golden Gate Park are shown in Figure 21.

Detailed Functional Plans and Profiles

Functional plans and profiles showing details of the location and design of Alternate C are presented in Figures 34 through 51 on the following pages.



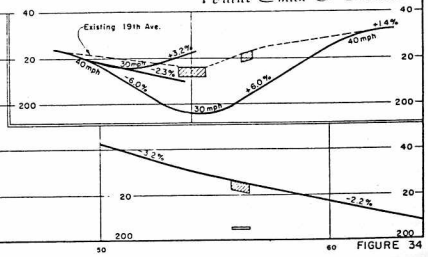
FUNCTIONAL PLAN

SUNSET BOULEVARD ROUTE

ALTERNATE C

SCALE 1" = 400' SHEET NO. C-1

Wilbur Smith & Associates



NOTE:
FOR INTERCHANGE PROFILES SEE SHEET C-9

FIGURE 34

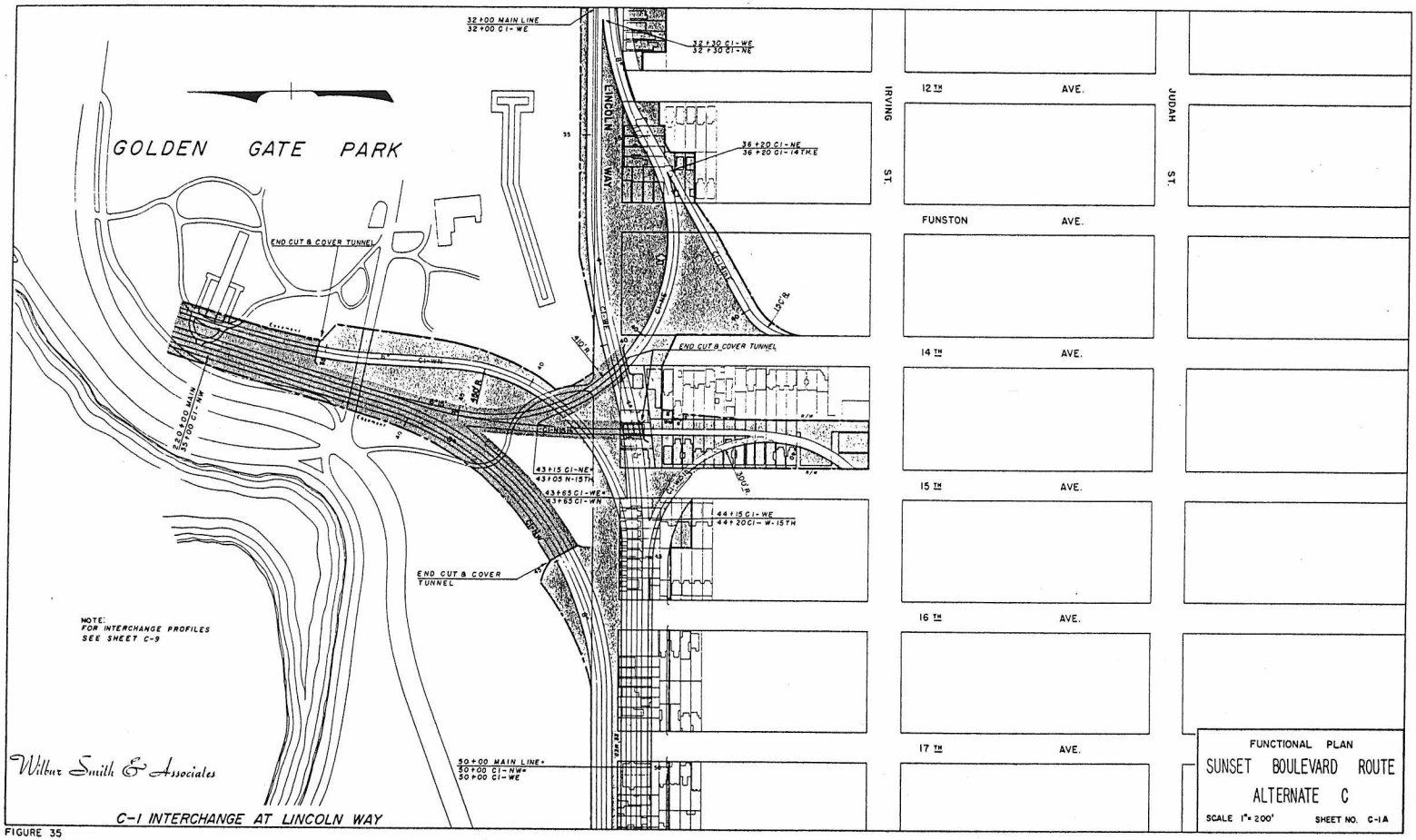
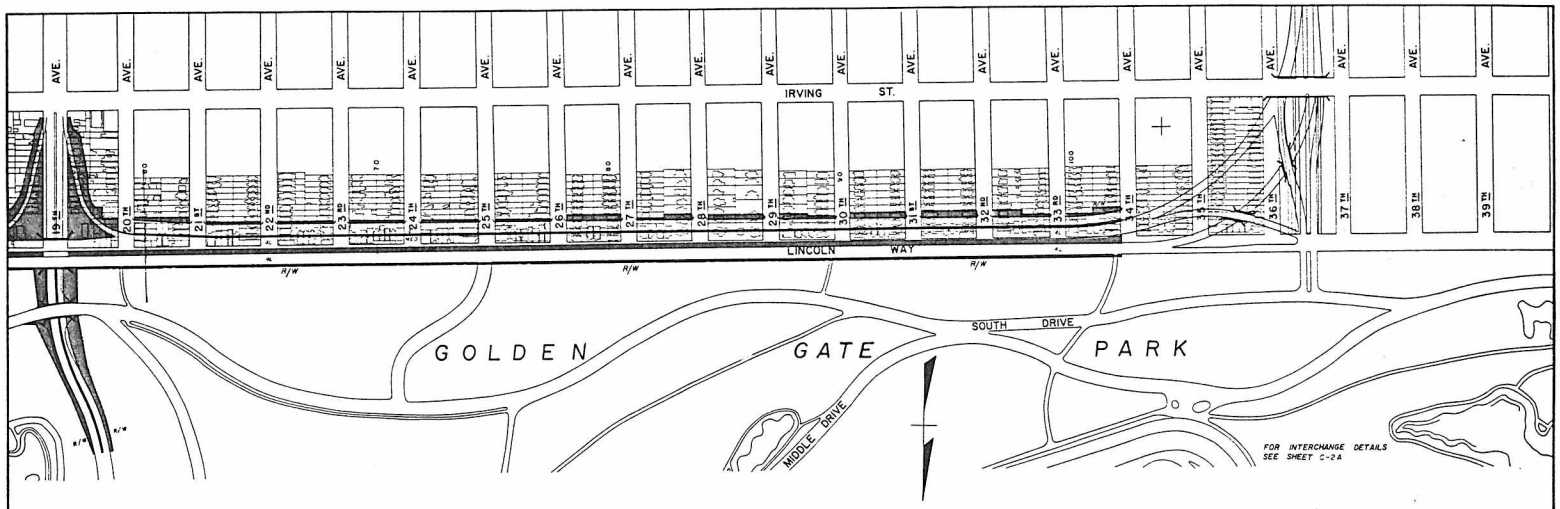

GOLDEN GATE PARK
32+00 MAIN LINE
32+00 C1-WE
32+30 C1-WE
32+30 C1-NE
36+20 C1-NE
36+20 C1-14TH E
END CUT & COVER TUNNEL
LINCOLN WAY
IRVING ST.
JUDAH ST.
12TH AVE.
FUNSTON AVE.
14TH AVE.
15TH AVE.
16TH AVE.
17TH AVE.
43+15 C1-NE
43+05 N-15TH
43+65 C1-WE
43+65 C1-WN
44+15 C1-WE
44+20 C1-W-15TH
50+00 MAIN LINE
50+00 C1-NW
50+00 C1-WE
NOTE:
FOR INTERCHANGE PROFILES
SEE SHEET C-9
Wilbur Smith & Associates
C-1 INTERCHANGE AT LINCOLN WAY
FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1"=200'
SHEET NO. C-1A

FIGURE 35



FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1"= 400' SHEET NO. C-2

Wilbur Smith & Associates

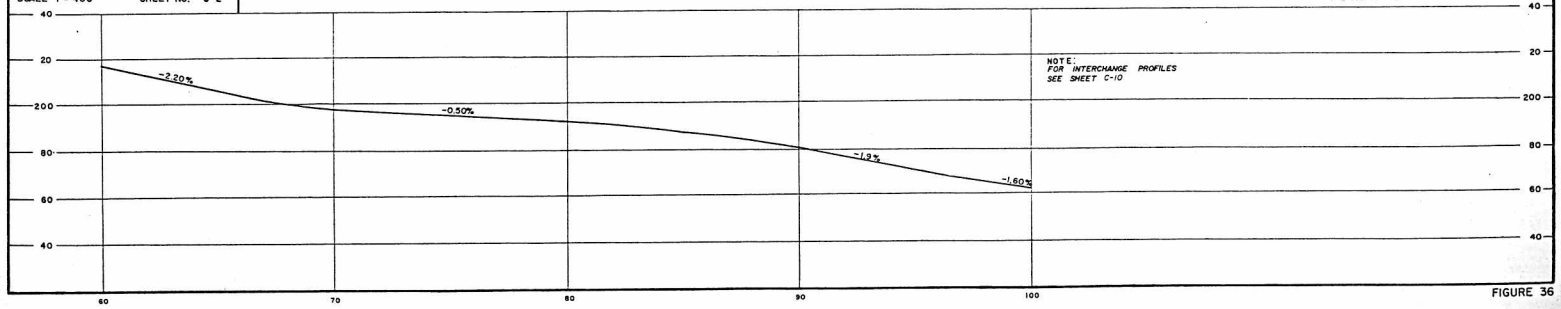


FIGURE 36

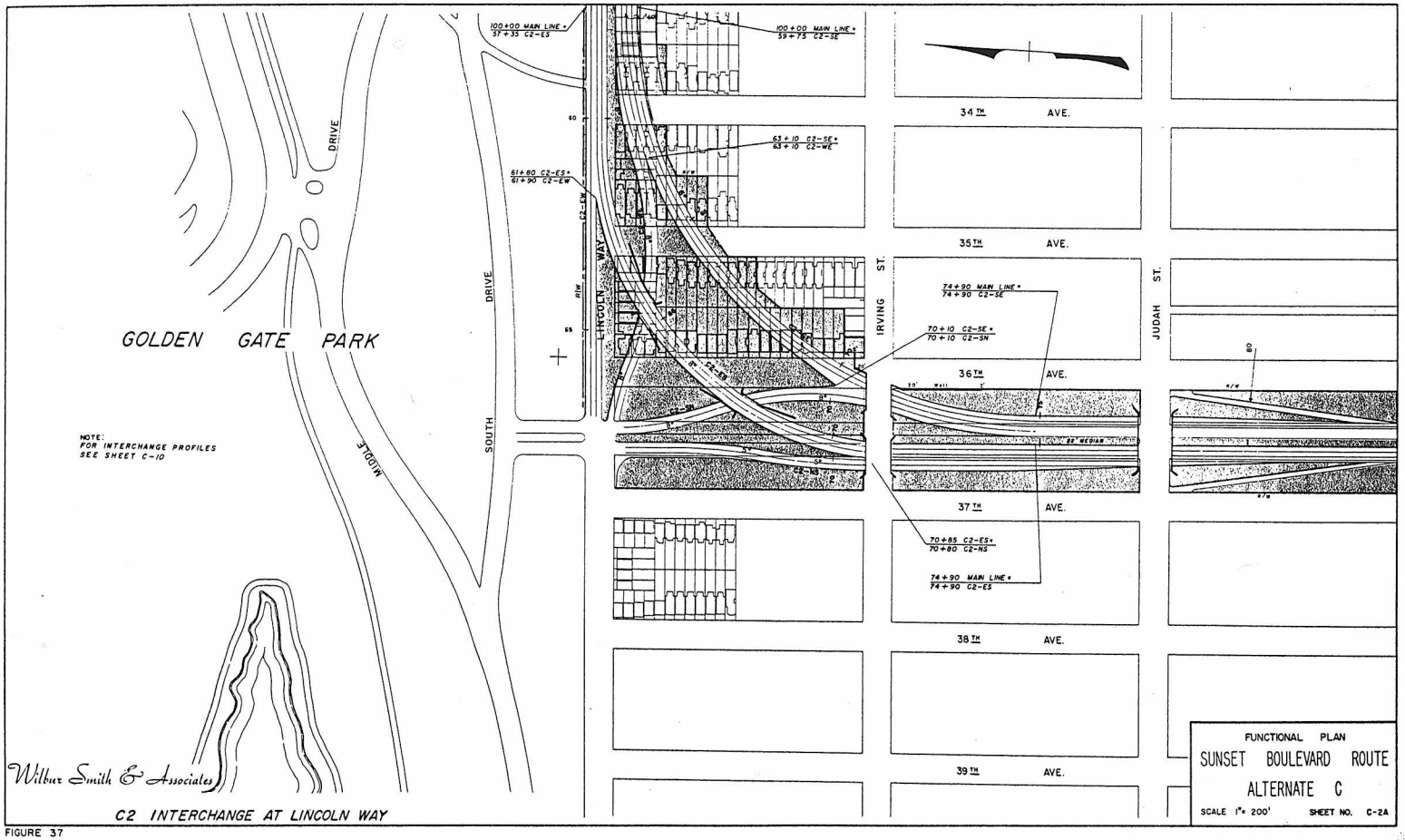
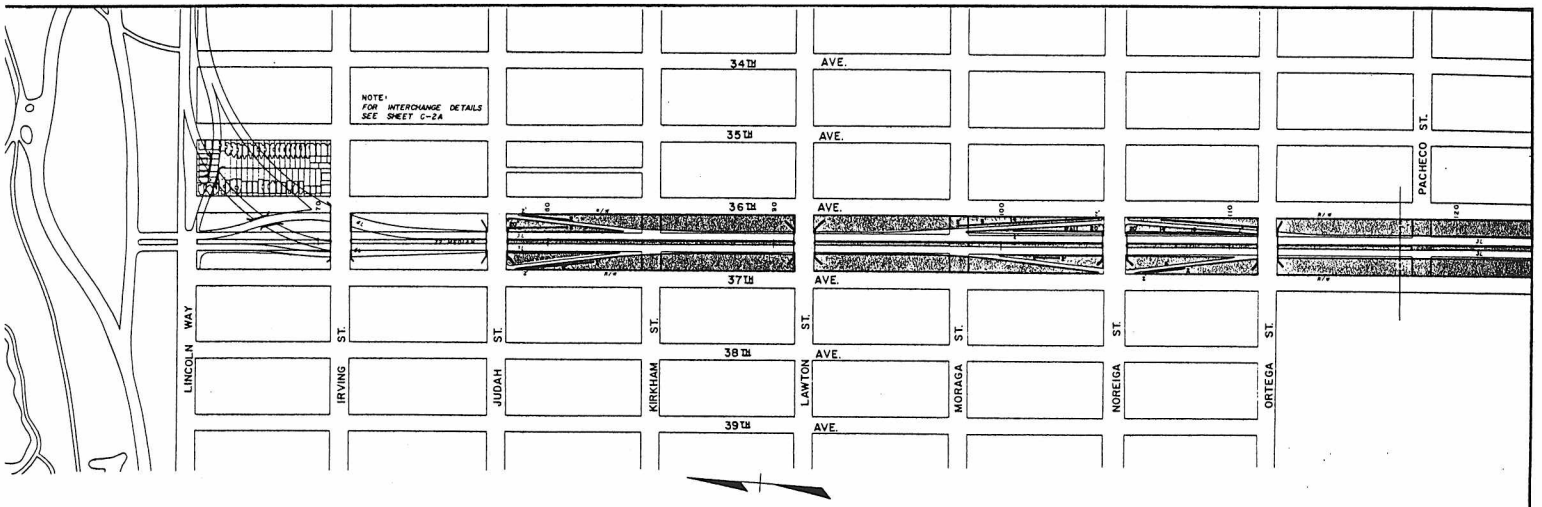

GOLDEN GATE PARK
DRIVE
SOUTH DRIVE
MIDDLE
LINCOLN WAY
IRVING ST.
JUDAH ST.
34TH AVE.
35TH AVE.
36TH AVE.
37TH AVE.
38TH AVE.
39TH AVE.
100+00 MAIN LINE + 37+35 C2-ES
100+00 MAIN LINE + 39+75 C2-SE
63+10 C2-SE + 63+10 C2-WE
61+80 C2-ES + 61+90 C2-EW
74+90 MAIN LINE + 74+90 C2-SE
70+10 C2-SE + 70+10 C2-SN
70+85 C2-ES + 70+80 C2-NS
74+90 MAIN LINE + 74+90 C2-ES
NOTE: FOR INTERCHANGE PROFILES SEE SHEET C-10
Wilbur Smith & Associates
C2 INTERCHANGE AT LINCOLN WAY
FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1" = 200'
SHEET NO. C-2A

FIGURE 37



FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1" = 400' SHEET NO. C-3

Wilbur Smith & Associates

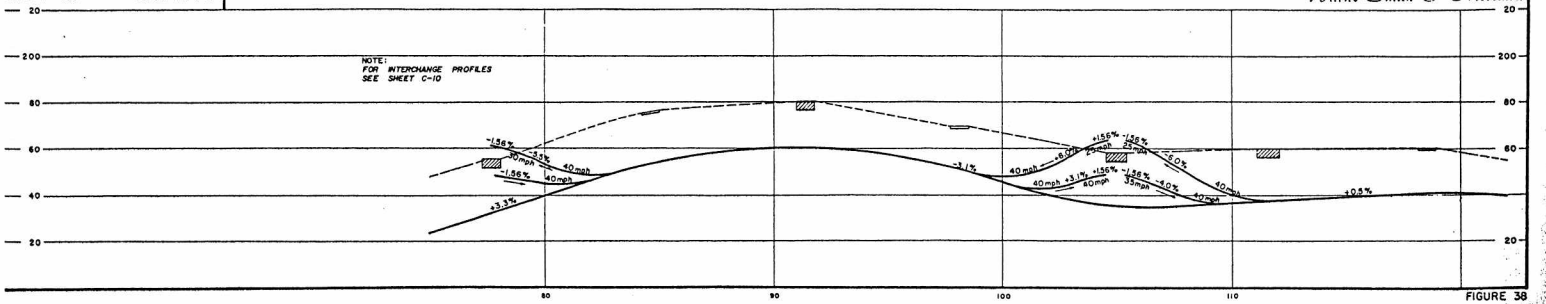
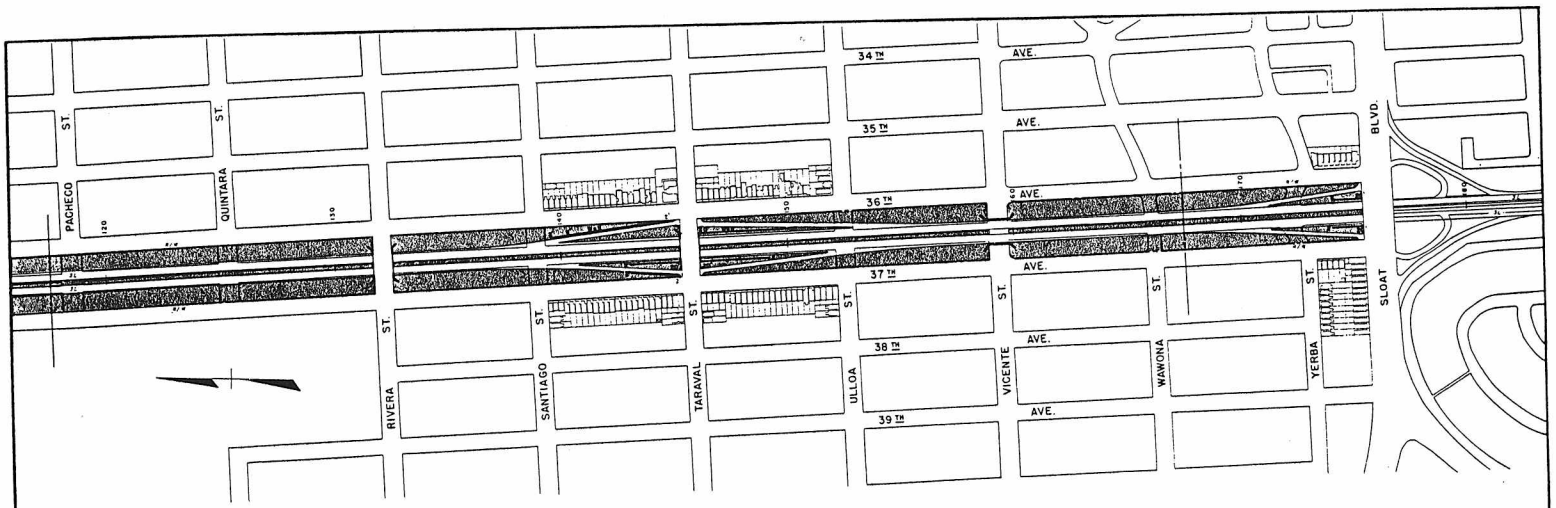


FIGURE 38



FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1"= 400 SHEET NO. C-4

Wilbur Smith & Associates

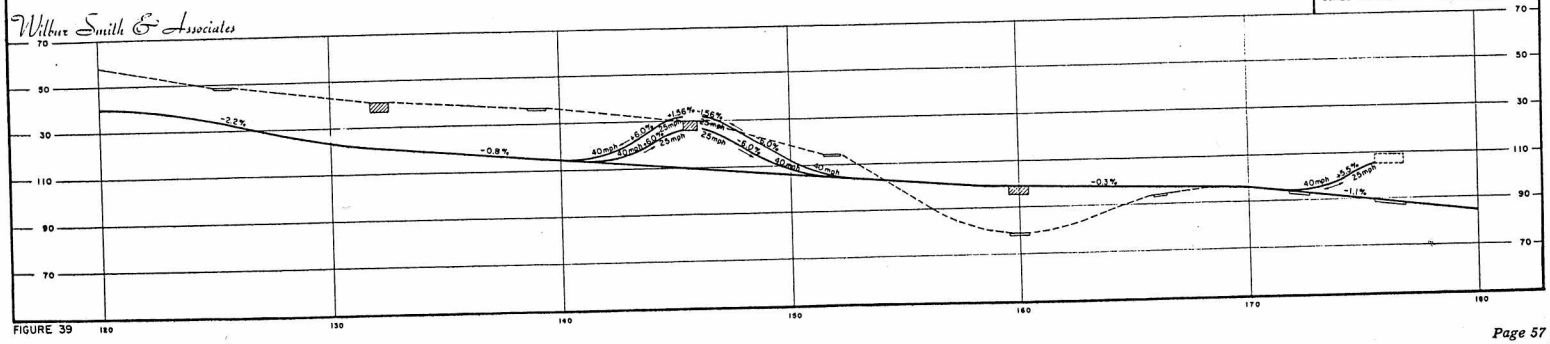
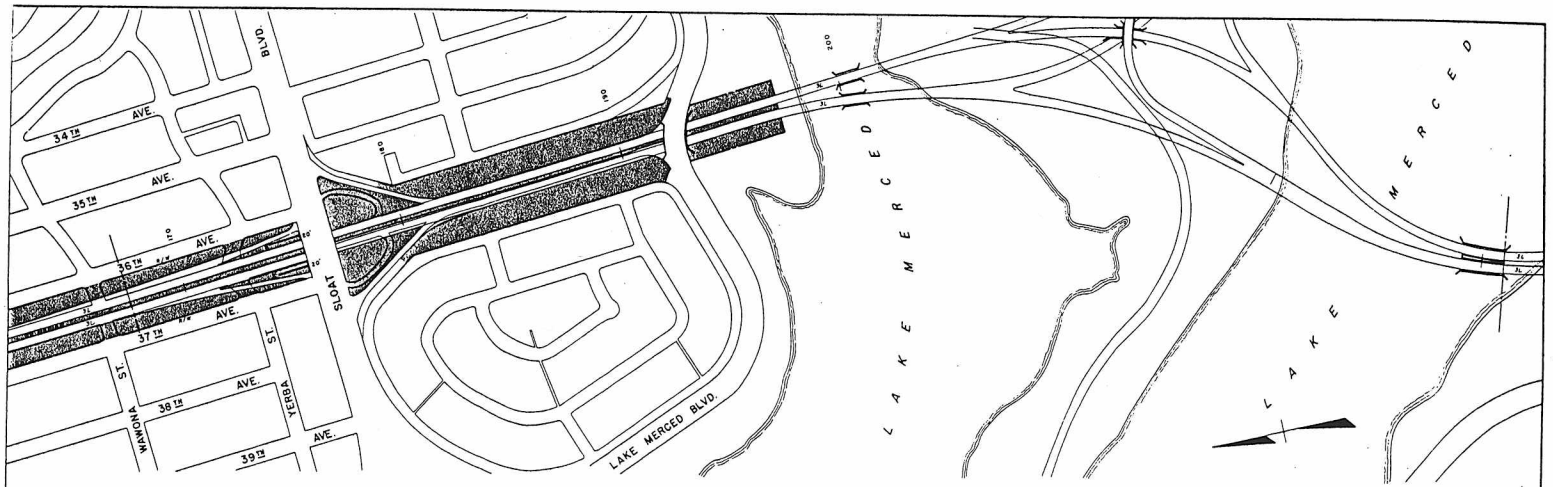


FIGURE 39



FUNCTIONAL PLAN

SUNSET BOULEVARD ROUTE

ALTERNATE C

SCALE 1"=400' SHEET NO. C-5

Wilbur Smith & Associates

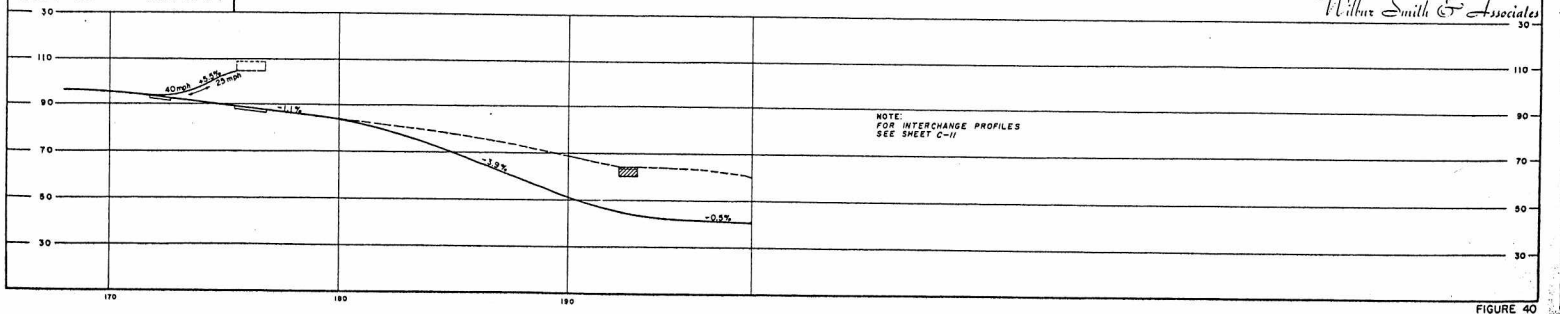
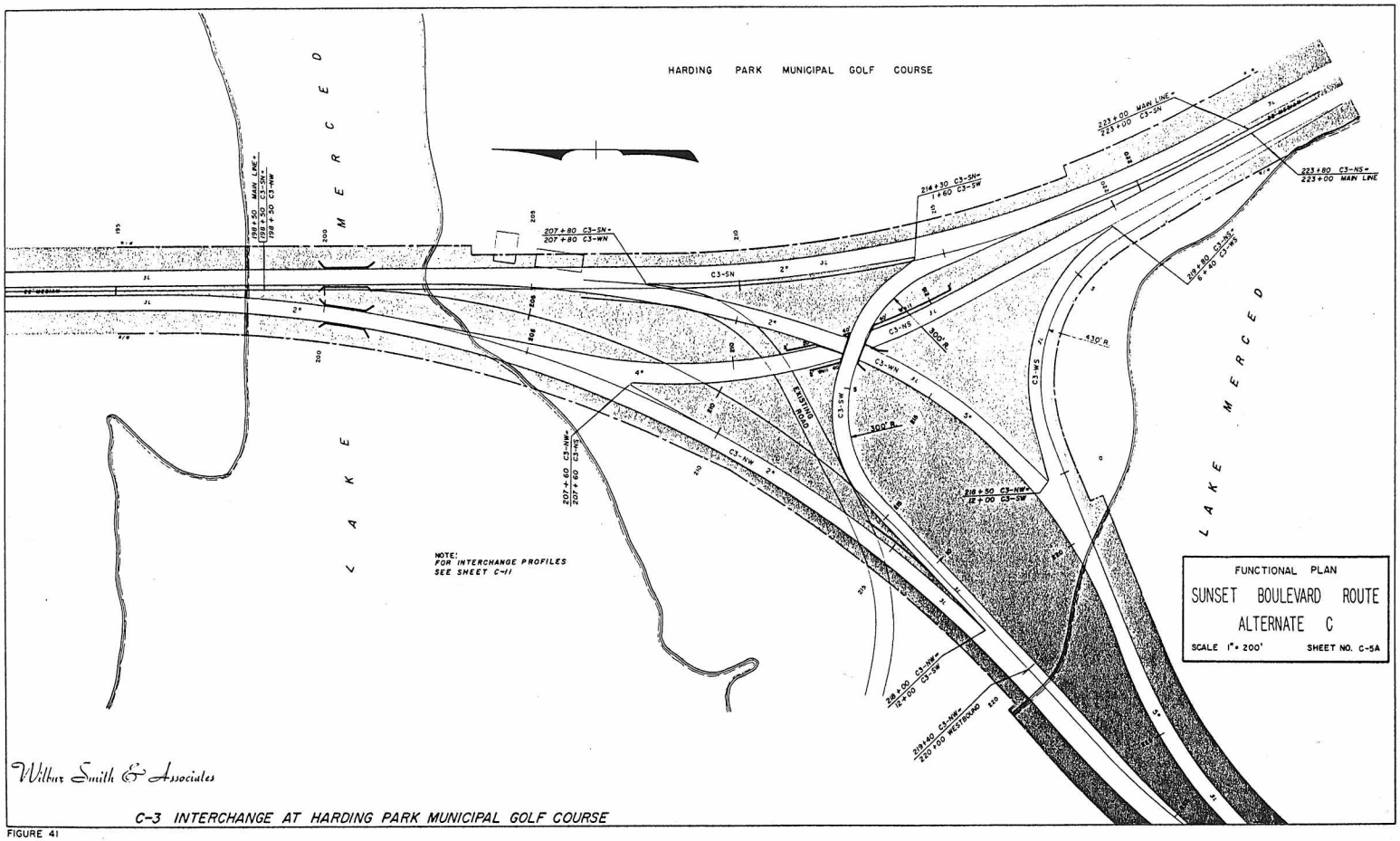


FIGURE 40



C-3 INTERCHANGE AT HARDING PARK MUNICIPAL GOLF COURSE

FIGURE 41

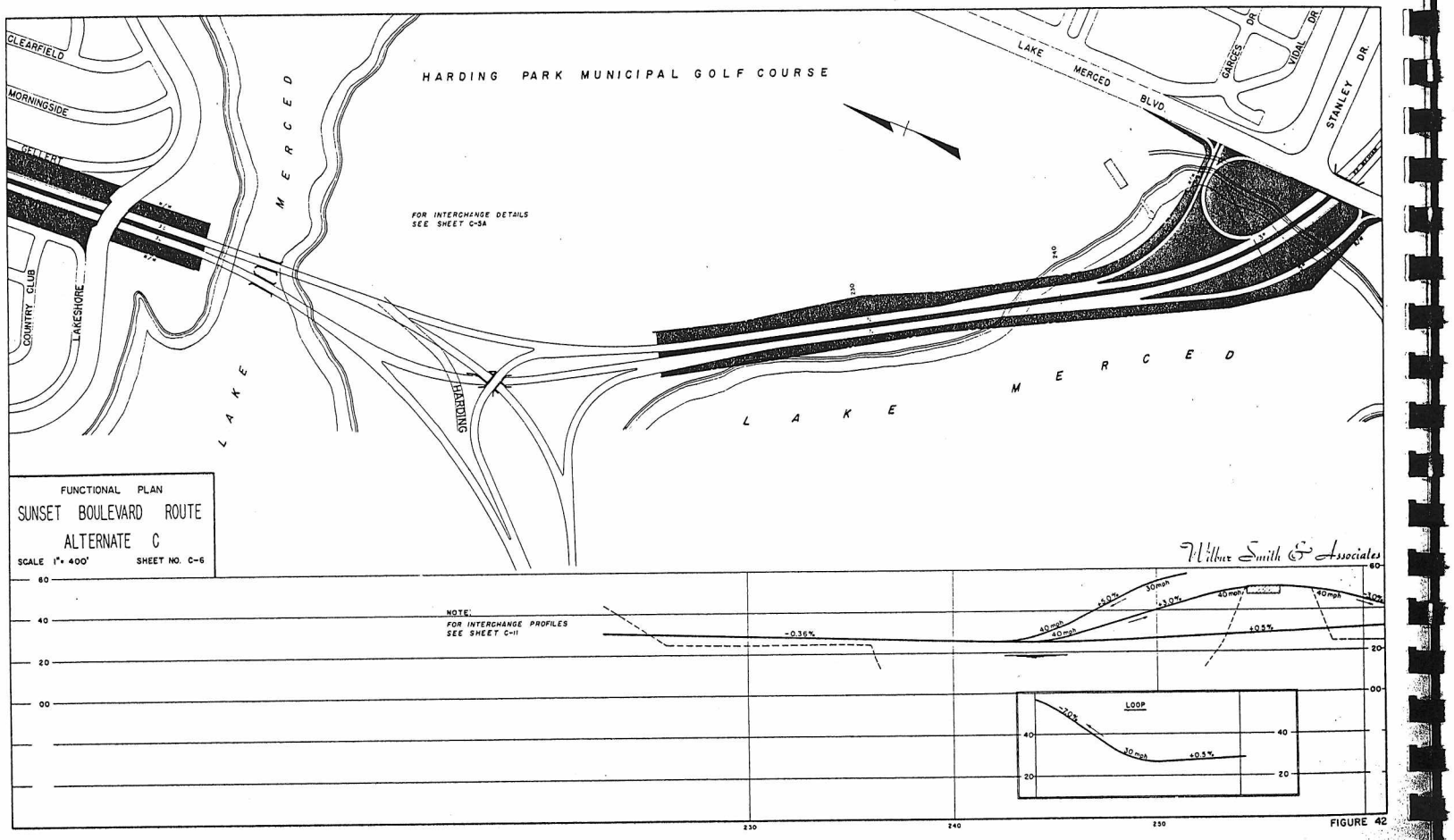
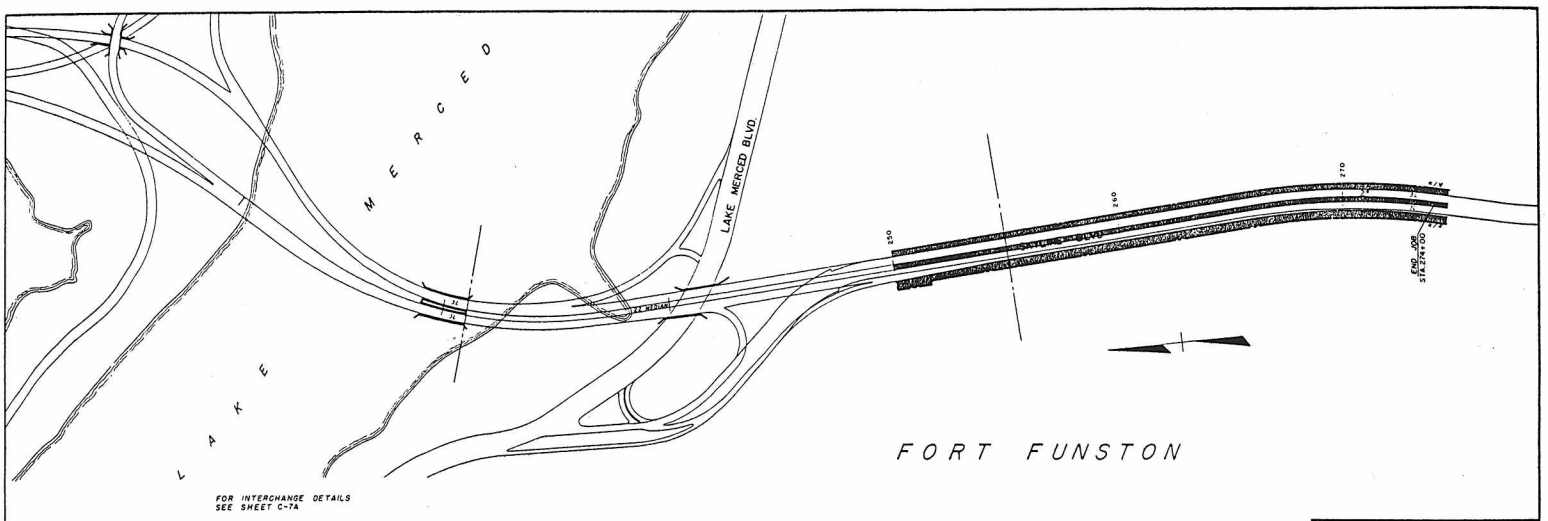

HARDING PARK MUNICIPAL GOLF COURSE
CLEARFIELD
MORNINGSIDE
GELERT
COUNTRY CLUB
LAKESHORE
LAKE MERCED
HARDING
LAKE MERCED BLVD.
GARCES DR.
VIDAL DR.
STANLEY DR.
FOR INTERCHANGE DETAILS SEE SHEET C-5A
LAKE MERCED
FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1"= 400' SHEET NO. C-6
Wilbur Smith & Associates
NOTE:
FOR INTERCHANGE PROFILES SEE SHEET C-11
-0.36%
+5.0%
30mph
+3.0%
40mph
40mph
40mph
40mph
-3.0%
+0.5%
LOOP
-7.0%
30mph
+0.5%
60
40
20
00
230
240
250

FIGURE 42



FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1"= 400' SHEET NO. C-7

Wilbur Smith & Associates

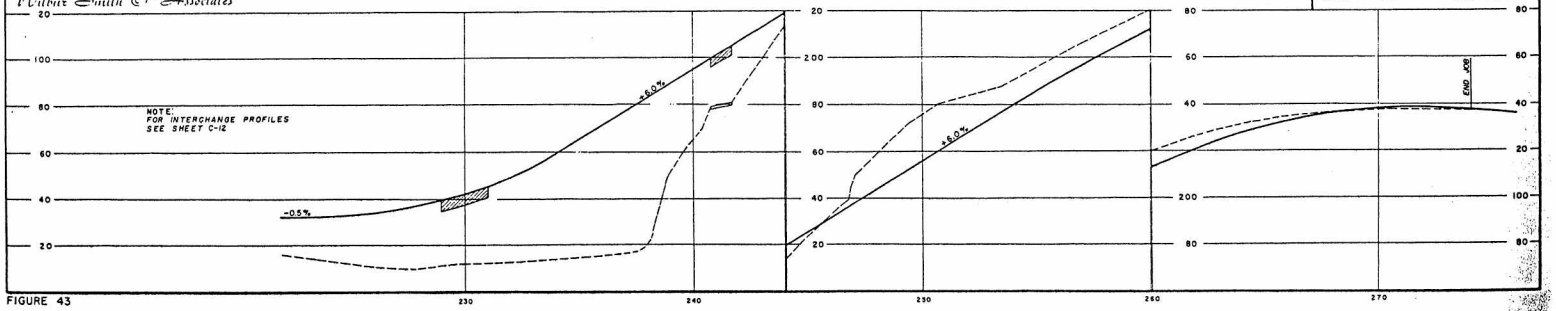
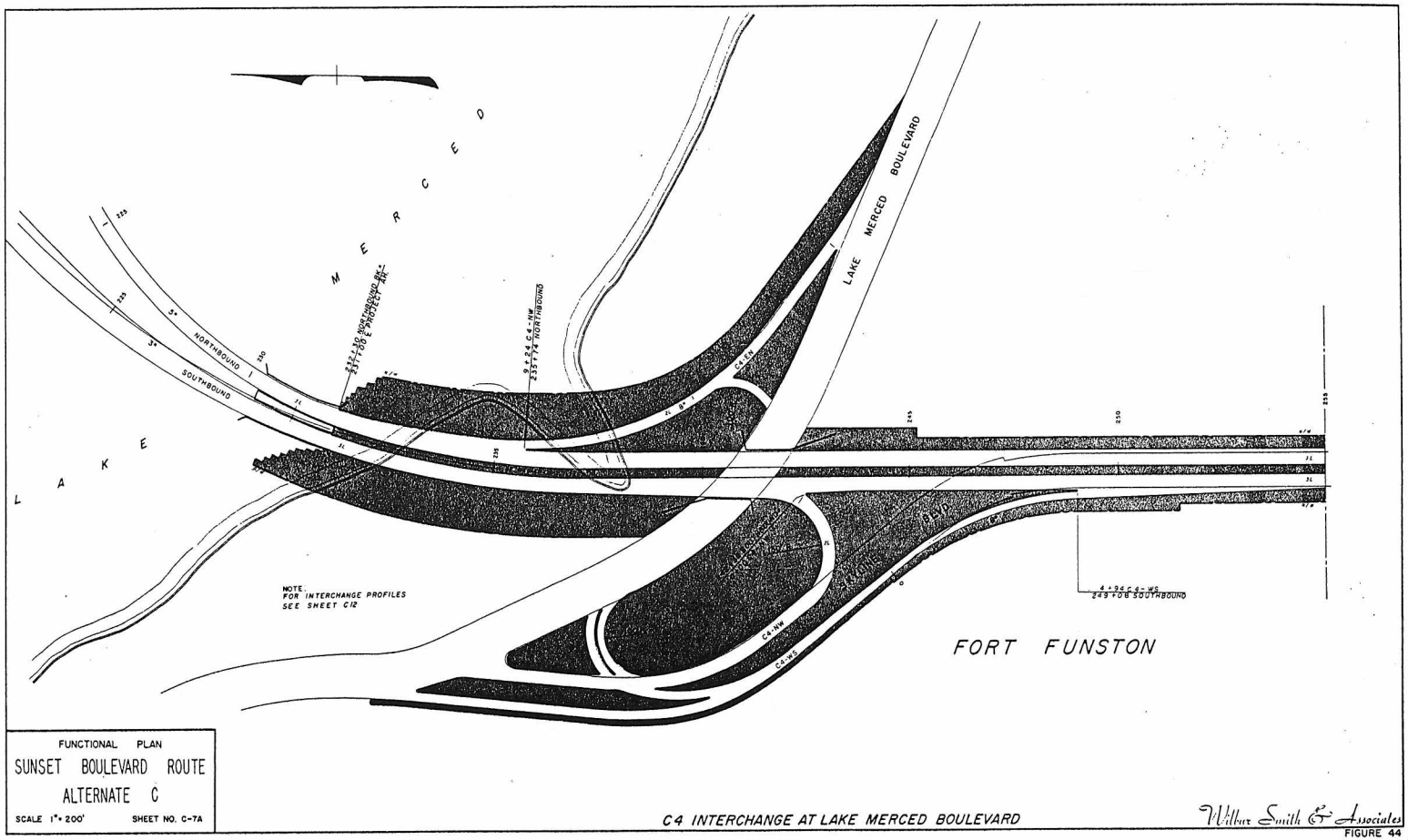


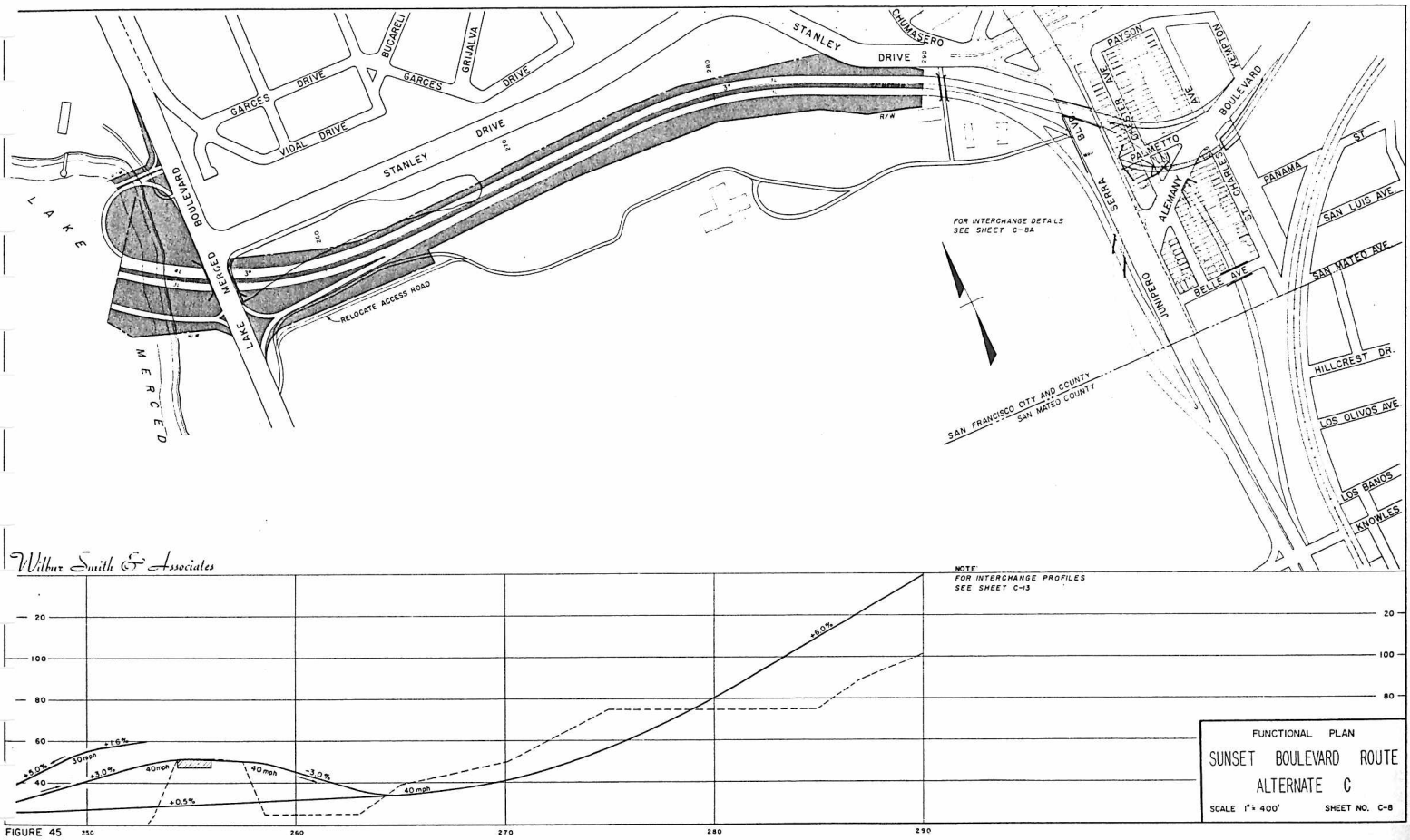
FIGURE 43



C4 INTERCHANGE AT LAKE MERCED BOULEVARD

Wilbur Smith & Associates

FIGURE 44



Wilbur Smith & Associates

NOTE
FOR INTERCHANGE PROFILES SEE SHEET C-13

FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1" = 400' SHEET NO. C-8

FIGURE 45

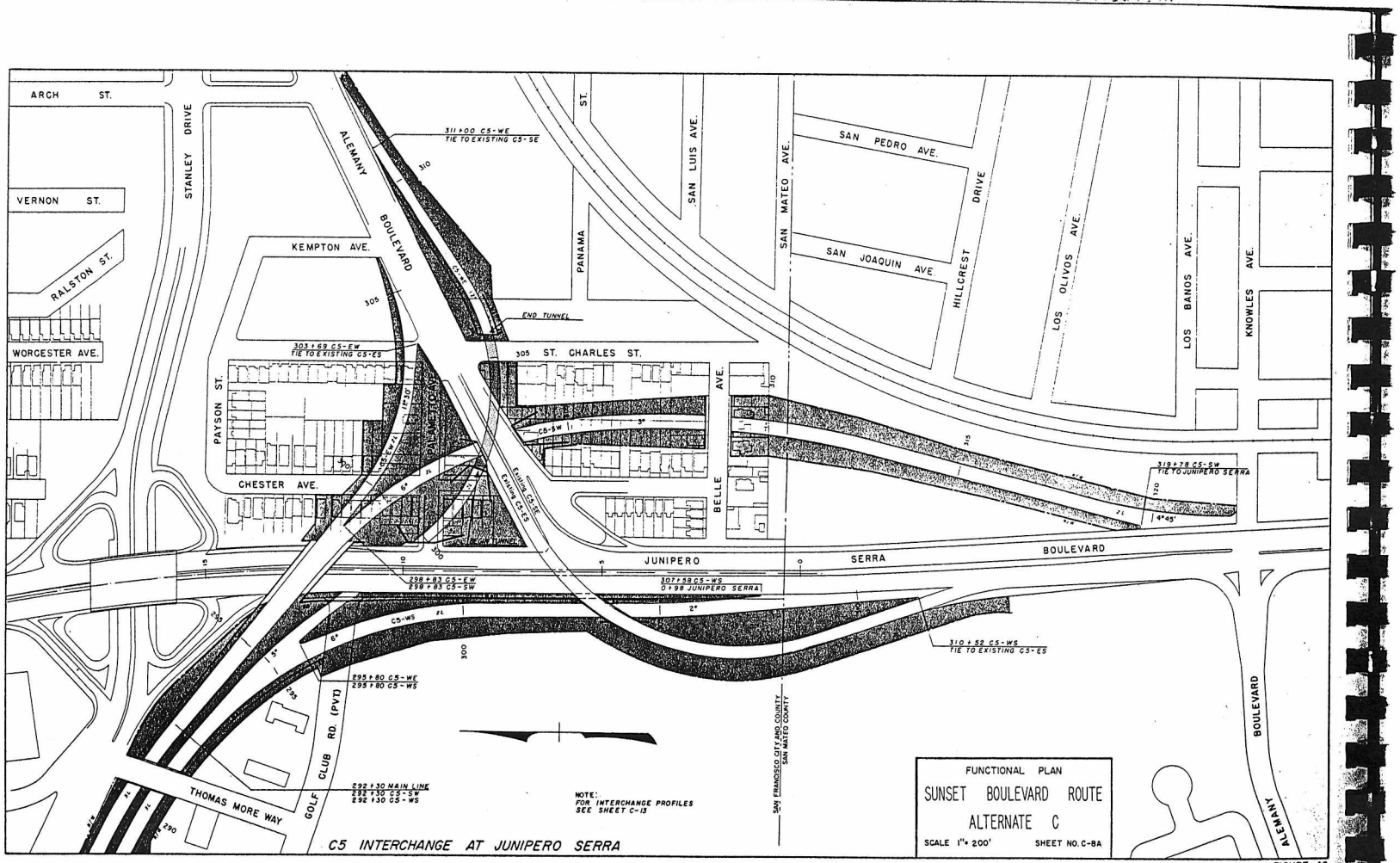

ARCH ST.
VERNON ST.
STANLEY DRIVE
RALSTON ST.
WORCESTER AVE.
KEMPTON AVE.
ALEMANY BOULEVARD
PAYSON ST.
CHESTER AVE.
PANAMA ST.
SAN LUIS AVE.
SAN MATEO AVE.
SAN PEDRO AVE.
SAN JOAQUIN AVE.
HILLCREST DRIVE
LOS OLIVOS AVE.
LOS BANOS AVE.
KNOWLES AVE.
ST. CHARLES ST.
BELLE AVE.
JUNIPERO SERRA BOULEVARD
311+00 C5-WE TIE TO EXISTING C5-SE
END TUNNEL
303+69 C5-EW TIE TO EXISTING C5-ES
319+78 C5-SW TIE TO JUNIPERO SERRA
298+83 C5-EW
298+83 C5-SW
307+58 C5-WS 0+98 JUNIPERO SERRA
310+52 C5-WS TIE TO EXISTING C5-ES
295+80 C5-WE
295+80 C5-WS
292+30 MAIN LINE
292+30 C5-SW
292+30 C5-WS
GOLF CLUB RD. (PVT)
THOMAS MORE WAY
SAN FRANCISCO CITY AND COUNTY
SAN MATEO COUNTY
NOTE:
FOR INTERCHANGE PROFILES
SEE SHEET C-13
FUNCTIONAL PLAN
SUNSET BOULEVARD ROUTE
ALTERNATE C
SCALE 1"= 200'
SHEET NO. C-8A
C5 INTERCHANGE AT JUNIPERO SERRA

FIGURE 46

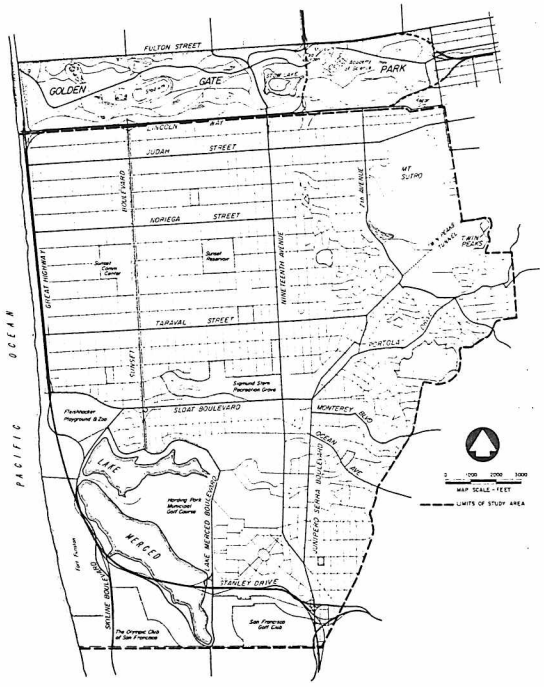
ALTERNATE D -- THE GREAT HIGHWAY ROUTE

The substantial width available on Great Highway between Sloat Boulevard and Lincoln Way has prompted many residents of San Francisco to suggest the development of the Western Freeway along this route to avoid property damages necessary with other routes. Actually, the development of the Great Highway Route (Alternate D) would involve considerable damage to properties because of the necessary connections to other parts of the planned freeway system. The Great Highway Route also has other disadvantages, which may not be apparent to the casual observer.

Route Description

The Great Highway Route for the Western Freeway is depicted schematically in Figure 52. If the Interstate Freeway is located in San Mateo County along the route presently proposed by the State Division of Highways (Junipero Serra Boulevard), the Great Highway Route would necessitate the development of a freeway connection around the west sides of Fleishhacker Playground and Zoo and Lake Merced, and a crossing of Lake Merced to Stanley Drive. The freeway would be developed along the south side of Stanley Drive to connect with both the Junipero Serra and Southern Freeways in the same manner as previously described for Alternate C. A high-type connection to Skyline Boulevard would also be provided. If the Interstate Route were to be relocated along Skyline Boulevard through Daly City, then the connection to Stanley Drive might be eliminated if adequate connections to the Southern Freeway are provided elsewhere. These connections could be made south of the San Francisco City limits. For the purposes of this study, it is necessary to consider that the Great Highway Route would be connected with the Junipero Serra Freeway as shown in Figure 52.

Between Sloat Boulevard and Lincoln Way, Alternate D would be located along the existing right-of-way of Great Highway. Since existing grade elevations on Great



LOCATION PLAN

THE GREAT HIGHWAY ROUTE
ALTERNATE D

Wilbur Smith & Associates

FIGURE 52

Highway are generally more than 10 feet higher than the adjacent streets, Alternate D would actually be a partially elevated roadway. It is not likely that a freeway along Great Highway would be depressed, considering the simplicity of improving the existing roadway to the desired standards of design. Interchange connections would be provided at Sloat Boulevard for trips to and from the north. Connections could also be provided at intermediate feeder streets, such as Taraval, Noriega and Judah Streets. However, access to Great Highway is not now provided at these locations and is not contemplated on the plan for Alternate D shown in Figure 52.

Direct connections would be provided to an east-west, limited-access connector along Lincoln Way in much the same manner as described for Alternate C; or, as described for Alternate C-Modified, the east-west connector could be developed as one-way limited-access pairs along Lincoln Way and Fulton Street at the expense of a portion of Golden Gate Park.

Design Details

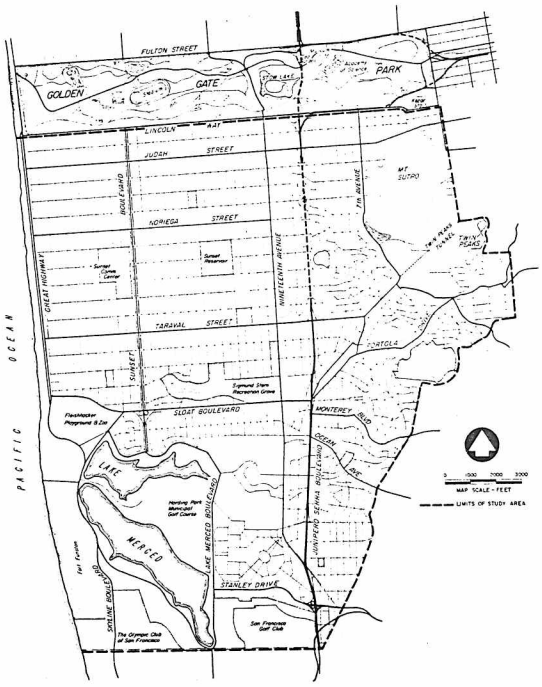
Details of design for Alternate D would be comparable in most respects to those previously described for Alternate C. Detailed functional plans for the Great Highway Route were not prepared.

ALTERNATE E -- THE JUNIPERO SERRA EXTENSION

The Junipero Serra Extension (Alternate E) was developed as an alternate to the Trafficways Plan Route. This alternate would provide the most direct route between the Junipero Serra Freeway and the Golden Gate Bridge.

Route Description

As shown in Figure 53, Alternate E would be common with the Trafficways Plan Route (Alternate A) from the City limits to about Santiago Street. At this point,



LOCATION PLAN

THE JUNIPERO SERRA EXTENSION
ALTERNATE E

Wilbur Smith & Associates

FIGURE 53

instead of tunneling in a northeast direction, Alternate E would continue to the north as a 5,700-foot twin-tube tunnel between Fourteenth and Fifteenth Avenues to Kirkham Street. Between Kirkham Street and Lincoln Way, properties in the blocks between Fourteenth and Fifteenth Avenues would be acquired. Connections between the Junipero Serra Extension and the Panhandle Freeway would be developed along both sides of Golden Gate Park as previously described for Alternate C.

Design Details

For sections of Alternate E which are common with Alternates A and C, details of design for Alternate E would be identical to those previously described. A grade of 3 percent would be maintained in the Alternate E tunnel section. The tunnel cross section would be similar to that described for Alternate A and shown on Figure 20.

Detailed Functional Plans

Detailed functional plans of Alternate E are presented in Figures 54 through 63 on the following pages.

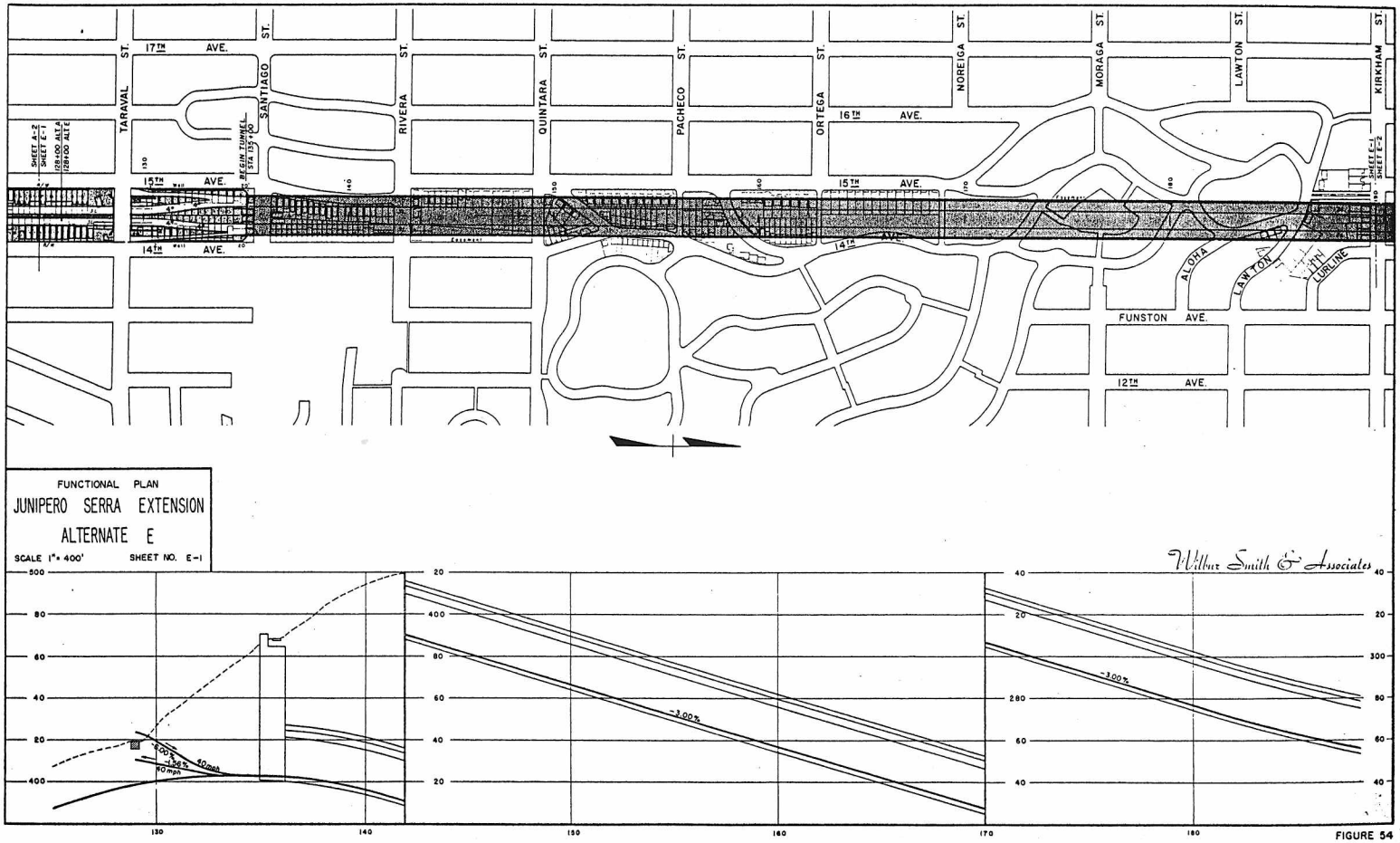
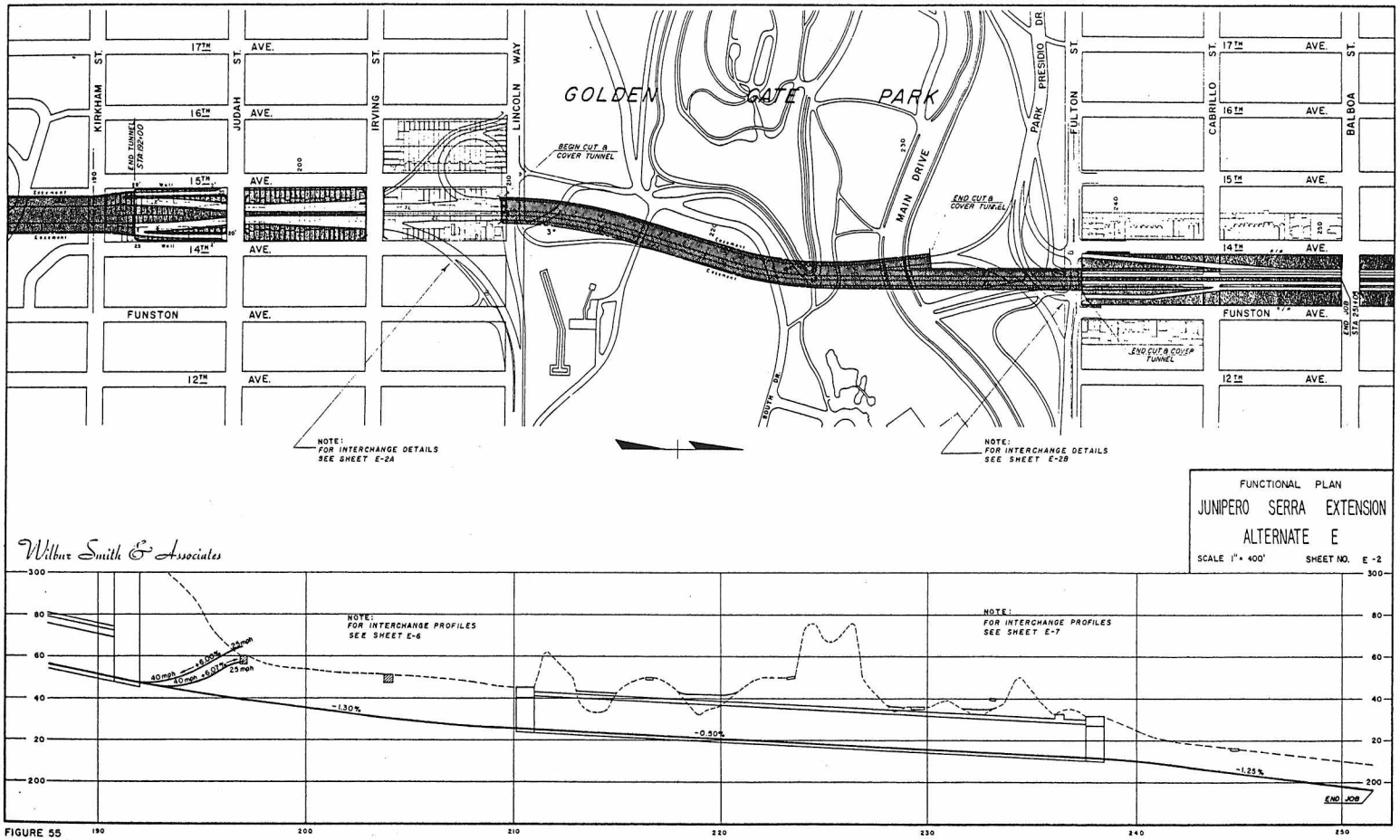

FUNCTIONAL PLAN
JUNIPERO SERRA EXTENSION
ALTERNATE E
SCALE 1"= 400'
SHEET NO. E-1
Wilbur Smith & Associates
17TH AVE.
16TH AVE.
15TH AVE.
14TH AVE.
12TH AVE.
TARAVAL ST.
SANTIAGO ST.
RIVERA ST.
QUINTARA ST.
PACHECO ST.
ORTEGA ST.
NORIEGA ST.
MORAGA ST.
LAWTON ST.
KIRKHAM ST.
FUNSTON AVE.
ALOHA
LAWTON
JUNIPERO SERRA BLVD.
LURLINE
BEGIN TUNNEL STA 135+00
SHEET A-2
SHEET E-1
SHEET E-2
-3.00%
-1.56%
40 mph

FIGURE 54



Wilbur Smith & Associates

FUNCTIONAL PLAN

JUNIPERO SERRA EXTENSION

ALTERNATE E

SCALE 1" = 400' SHEET NO. E-2

FIGURE 55

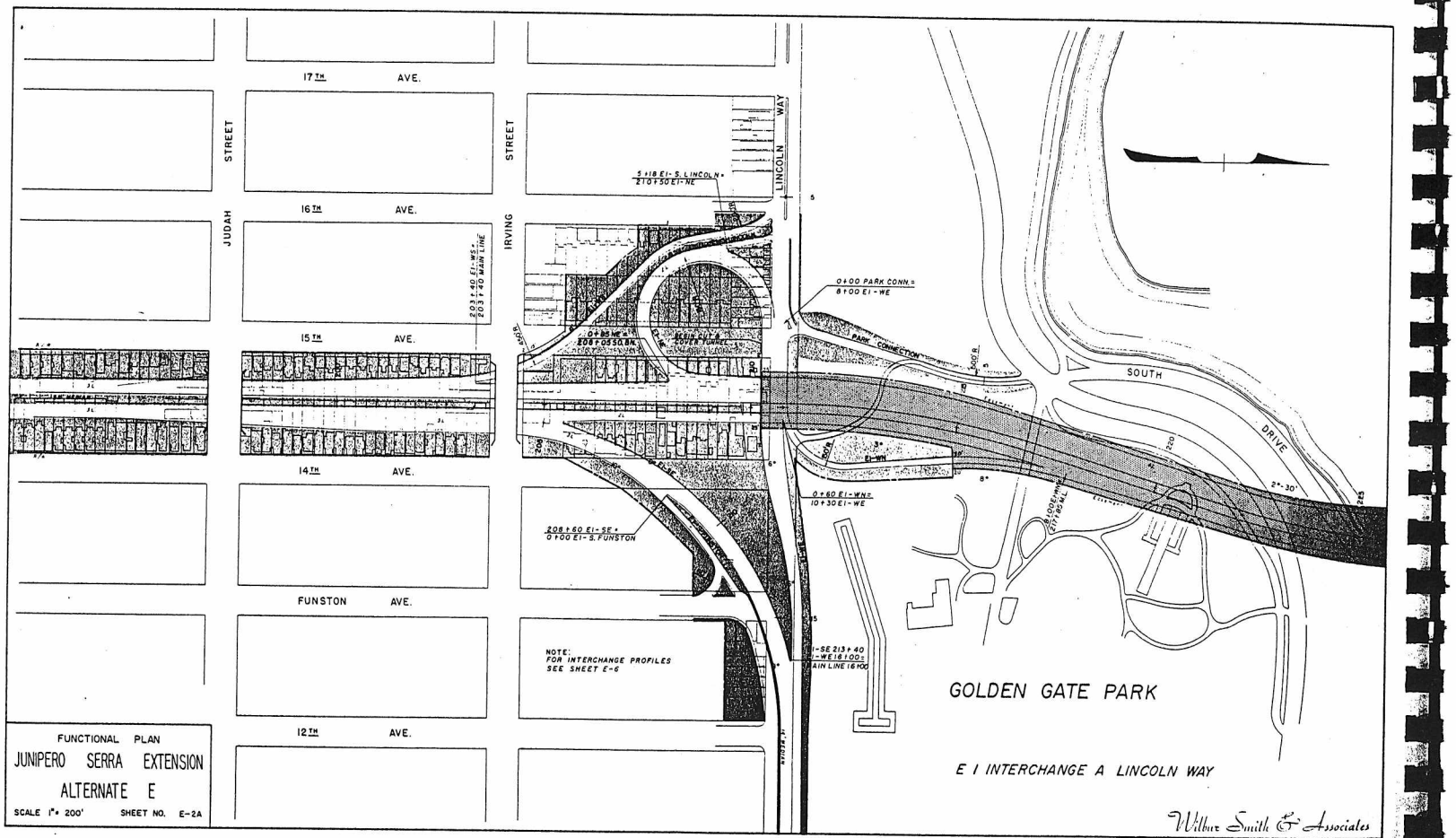
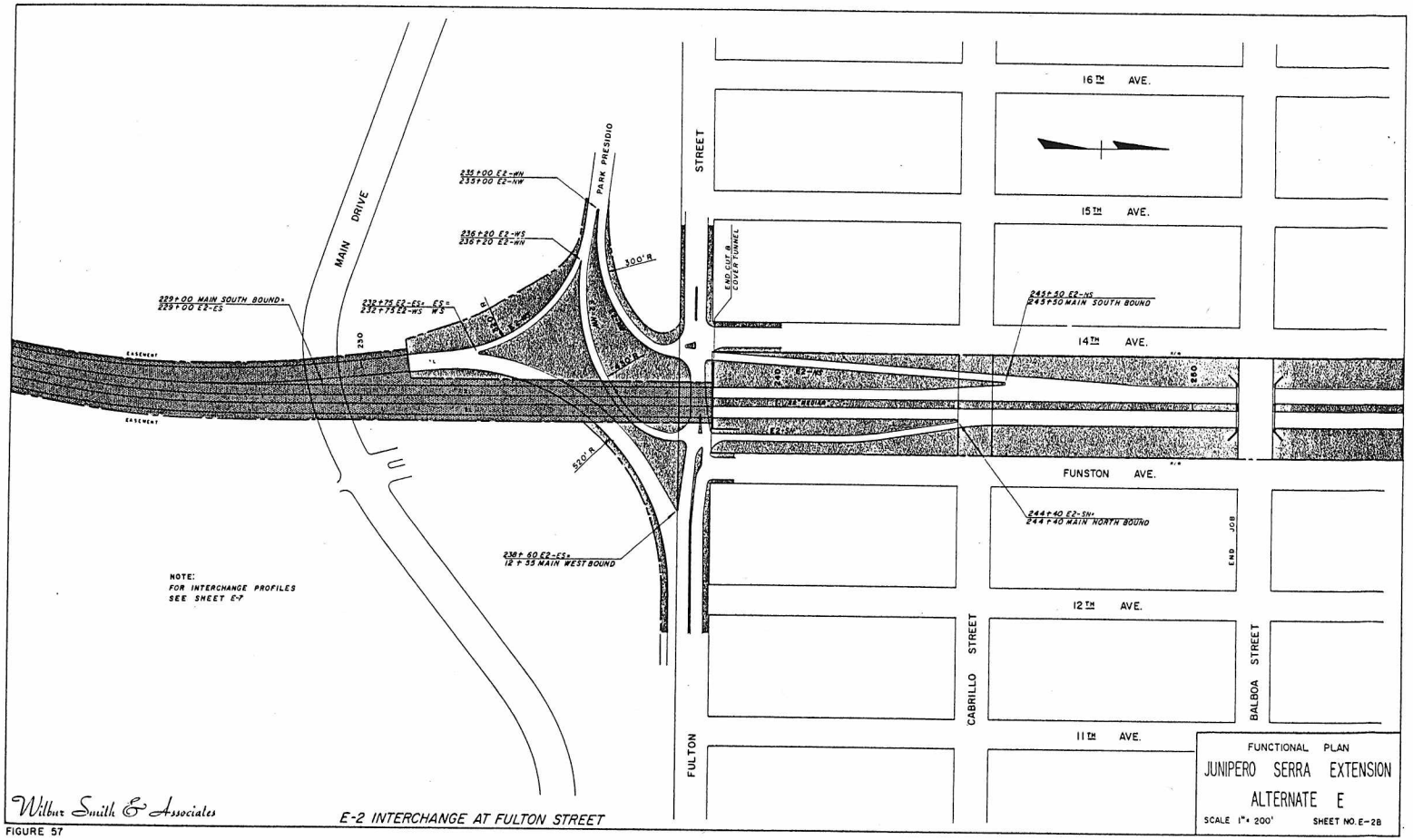

17TH AVE.
16TH AVE.
15TH AVE.
14TH AVE.
FUNSTON AVE.
12TH AVE.
JUDAH STREET
IRVING STREET
LINCOLN WAY
5+18 EI-S. LINCOLN =
210+50 EI-NE
0+00 PARK CONN. =
8+00 EI-WE
PARK CONNECTION
SOUTH DRIVE
208+60 EI-SE =
0+00 EI-S. FUNSTON
NOTE:
FOR INTERCHANGE PROFILES
SEE SHEET E-6
GOLDEN GATE PARK
E I INTERCHANGE A LINCOLN WAY
FUNCTIONAL PLAN
JUNIPERO SERRA EXTENSION
ALTERNATE E
SCALE 1" = 200'
SHEET NO. E-2A
Wilbur Smith & Associates

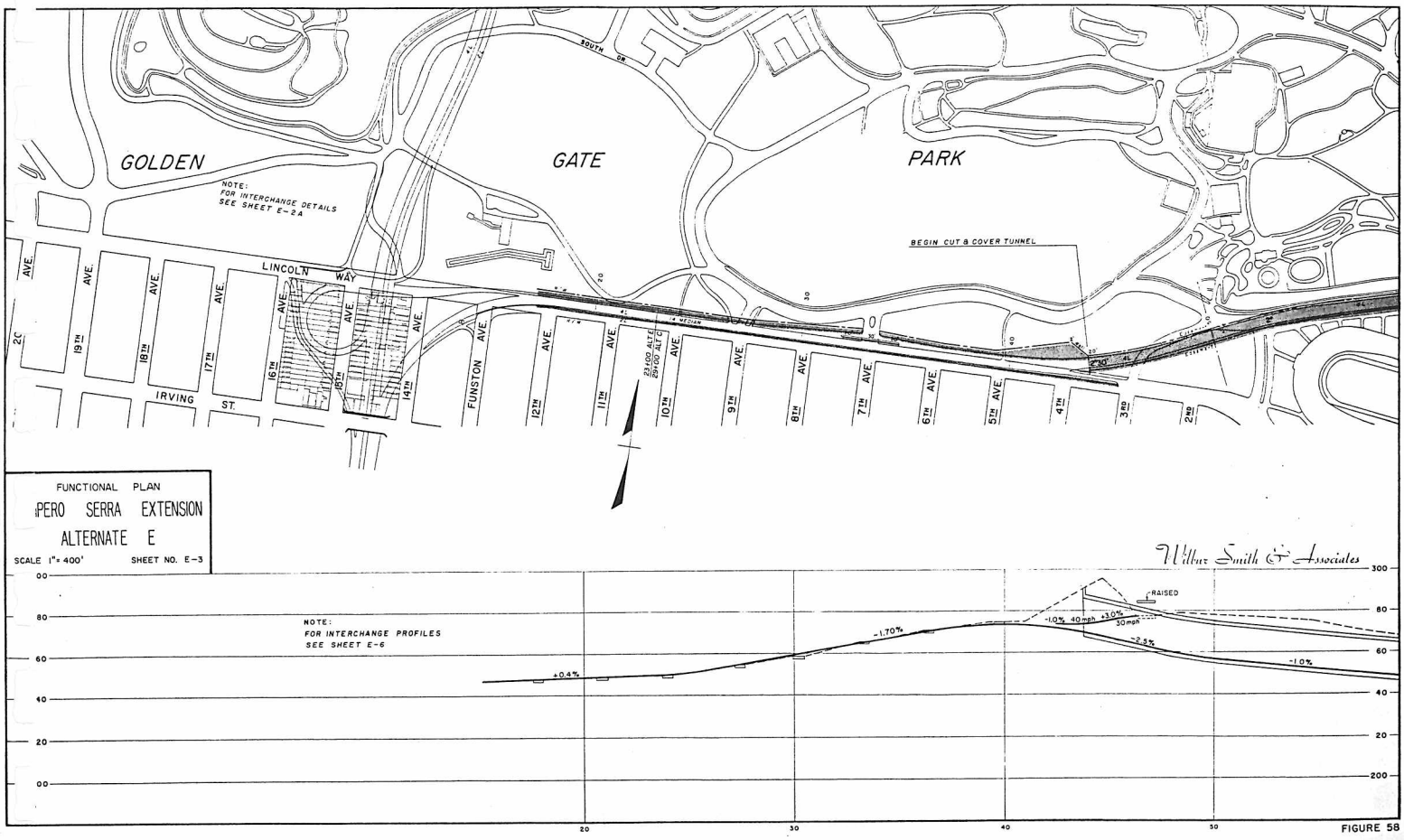
FIGURE 56



Wilbur Smith & Associates

E-2 INTERCHANGE AT FULTON STREET

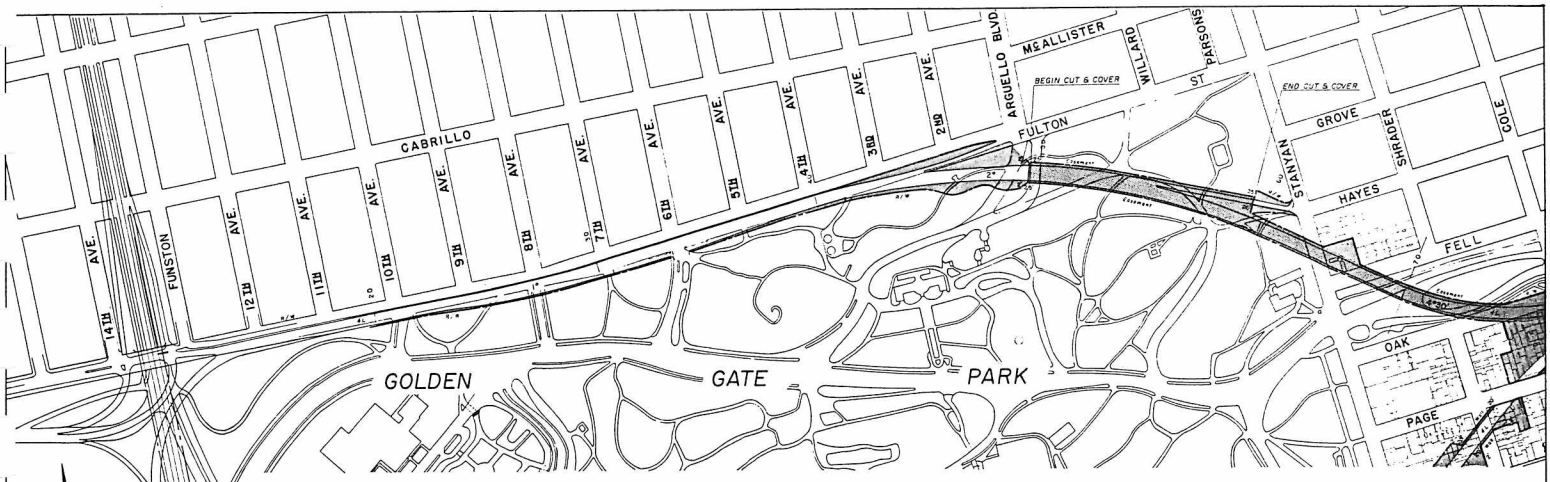
FIGURE 57



FUNCTIONAL PLAN
PERO SERRA EXTENSION
ALTERNATE E
SCALE 1" = 400' SHEET NO. E-3

Wilbur Smith & Associates

FIGURE 58



FUNCTIONAL PLAN
JUNIPERO SERRA EXTENSION
ALTERNATE E
SCALE 1"= 400' SHEET NO. E-4

Wilbur Smith & Associates

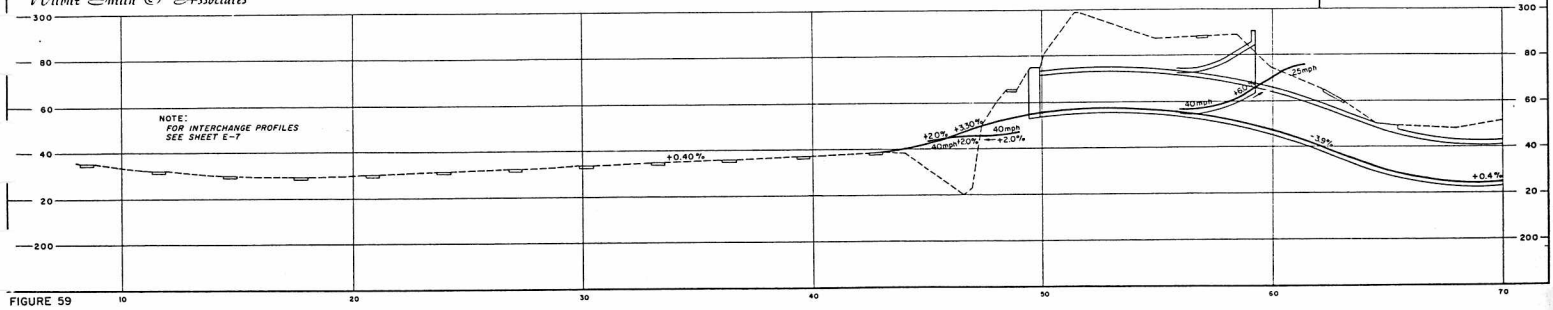


FIGURE 59

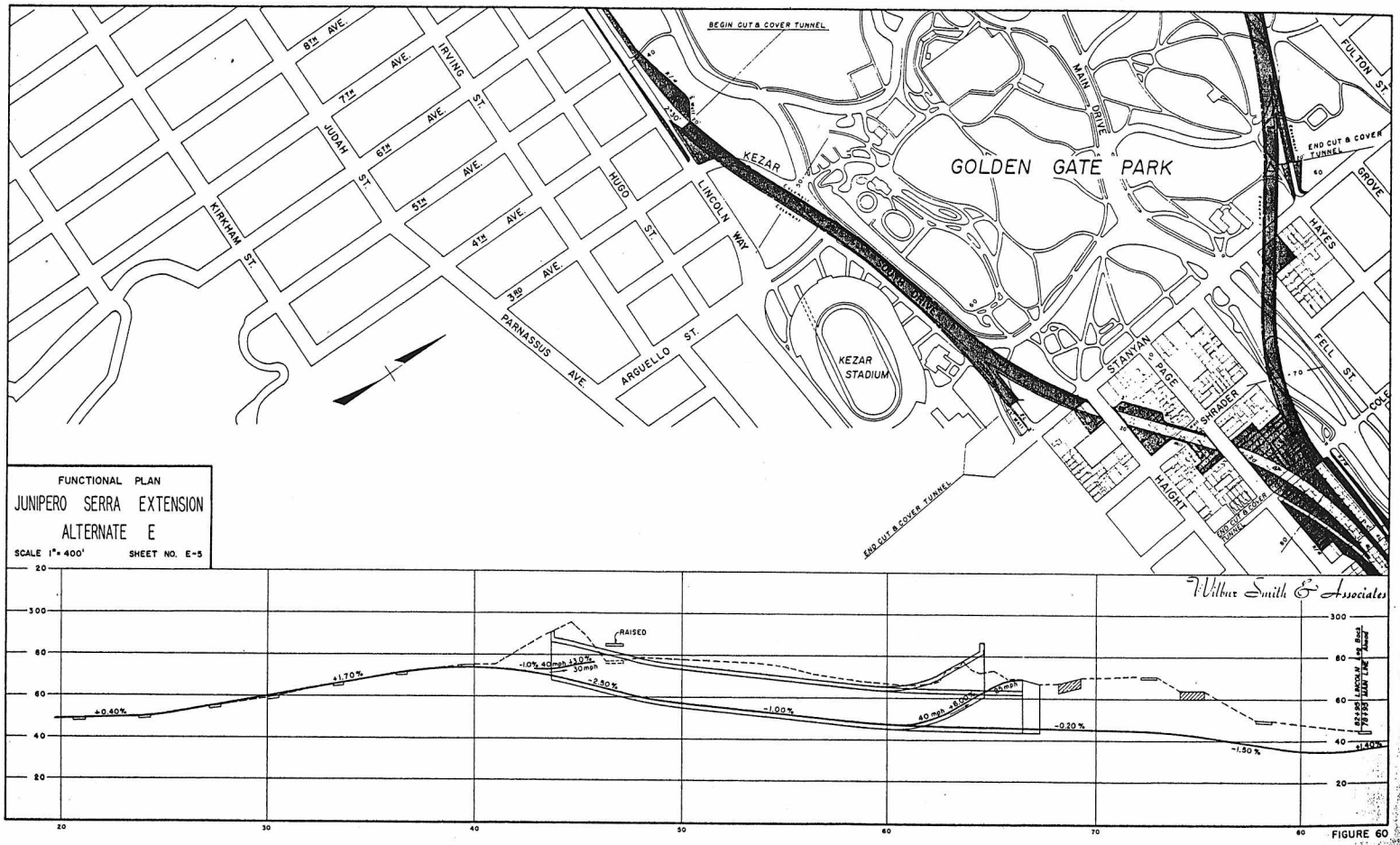

BEGIN CUT & COVER TUNNEL
KEZAR
GOLDEN GATE PARK
MAIN DRIVE
FULTON ST.
END CUT & COVER TUNNEL
GROVE
HAYES
FELL ST.
KIRKHAM ST.
JUDAH ST.
IRVING ST.
HUGO ST.
LINCOLN WAY
8TH AVE.
7TH AVE.
6TH AVE.
5TH AVE.
4TH AVE.
3RD AVE.
PARNASSUS AVE.
ARGUELLO ST.
KEZAR STADIUM
STANYAN
PAGE
SHRADER
HAIGHT
END CUT & COVER TUNNEL
FUNCTIONAL PLAN
JUNIPERO SERRA EXTENSION
ALTERNATE E
SCALE 1"= 400'
SHEET NO. E-5
Wilbur Smith & Associates
RAISED
+0.40%
+1.70%
-1.0% 40 mph
30 mph
-2.50%
-1.00%
40 mph
-0.20%
-1.50%
+1.40%
LINCOLN HWY
20
30
40
50
60
70
80
300
80
60
40
20

FIGURE 60

SHRADER ST.
COLE ST.
CLAYTON ST.
ASHBURY ST.
MASONIC ST.
CENTRAL ST.
LYON ST.
BAKER ST.
BRODERICK ST.
DIVISIDERO ST.
SCOTT ST.
PIERCE ST.
STEINER ST.
FILLMORE ST.
FELL ST.
OAK ST.
PAGE ST.
HAIGHT ST.
END CUT & COVER TUNNEL
END JOB 86120 RTE E*
189+15 STATE PLAN
FULTON LEG*
78+95 ROUTE E
78+95
82+15
FULTON LEG*
78+95 ROUTE E
FUNCTIONAL PLAN
JUNIPERO SERRA EXTENSION
ALTERNATE E
SCALE 1" = 400'
SHEET NO. E-6
Wilbur Smith & Associates
25mph
40mph
-6.0%
-2.8%
+2.8%
+0.40%
-1.6%
FULTON LEG*
78+95 ROUTE E
END JOB 86120 RTE E*
189+15 STATE PLAN
80
60
40
20
200
70
80

FIGURE 61

Chapter VIII
SUMMARY AND RECOMMENDATIONS

Numerous locations have been considered for the development of a Western Freeway in San Francisco between the San Francisco-San Mateo County line and the vicinity of Kezar Stadium. Detailed route location, traffic, and economic studies were made for the several feasible alternates, considering the Western Freeway as an important component of an integrated freeway system in San Francisco, and as a part of the designated National System of Interstate and Defense Highways. These studies were undertaken under the premise that the Western Freeway should not be constructed as an elevated freeway. The principal alternates developed in this study involve construction of the main roadway of the Western Freeway at or below the present grade level, employing fully depressed and landscaped construction, or tunnel construction where feasible.

For the Western Freeway to be an integral part of a regional freeway system, to qualify for federal appropriations for routes on the National System of Interstate and Defense Highways, and to provide the traffic service functions intended, it must connect with certain other planned freeways which are included in the official Trafficways Plan of the Transportation Section of the Master Plan of San Francisco. These include a Park Presidio Freeway, which would link the Western Freeway with the Golden Gate Bridge; a Panhandle Freeway, which would link the Western Freeway with the existing Central Freeway and the downtown area; and the Junipero Serra Freeway, which is the interstate freeway route in San Mateo County.

Detailed and objective studies of traffic demands in the Western Freeway traffic corridor indicate that each of the high-capacity facilities mentioned above will be essential to effectively provide for future needs. As described in detail in the Phase I report of this study, a properly located and designed Western Freeway would be a vital element in an integrated system of freeways for San Francisco, without which the quality of traffic operations will decrease to intolerable levels in future years. These studies, although limited in scope, further indicate the important inter-relationships between the various proposed San Francisco freeways, and the advisability of a more comprehensive review of the complete Trafficways Plan in the light of current conditions.

Of many locations studied for a Western Freeway between the San Francisco-San Mateo County line and the vicinity of Kezar Stadium, five basic routes plus modifications to two of these routes were selected for detailed analyses. These alternates, which are indicated on Figure 64, are described as follows:

Alternate A. The original Trafficways Plan Route.

Alternate A-Modified. The Trafficways Plan Route modified to reduce property damages.

Alternate B. A route parallel to Nineteenth Avenue, located between Eighteenth and Nineteenth Avenues between Sloat Boulevard and Lincoln Way.

Alternate C. A route along Sunset Boulevard between Sloat Boulevard and Lincoln Way with east-west connections to other San Francisco freeways located along Lincoln Way and developed properties south of Lincoln Way.

Alternate C-Modified. The Sunset Boulevard Route with the east-west connections to other San Francisco freeways developed by constructing one-way freeway connections along Lincoln Way and Fulton Street and necessitating extensive encroachment on Golden Gate Park.

Alternate D. A route along Great Highway.

Alternate E. A northerly extension of the proposed Junipero Serra Freeway along Junipero Serra Boulevard and between Fourteenth and Fifteenth Avenues north of Sloat Boulevard.

Alternate A, A-Modified, B or E would be constructed as a depressed freeway along Junipero Serra Boulevard from the San Francisco-San Mateo County line to about Sloat Boulevard. Alternate C or D would be linked with the Junipero Serra Freeway by constructing freeway connectors across Lake Merced and along the south side of Stanley Drive. Alternates A, A-Modified and E include long sections of tunnel construction under Sunset Heights which would preserve surface land developments.

Alternates B and C would include depressed freeway construction between Sloat Boulevard and Lincoln Way, while Alternate D would be constructed at about present grade level. Each route would be connected with the Park Presidio and Panhandle Freeways by the construction of open-cut depressed sections through Golden Gate Park; these sections would be covered and landscaped.

Each of the above described alternates is physically feasible. However, these studies indicate that several of these routes would be undesirable locations for the Western Freeway. Although well located with respect to major traffic desires, Alternate B, the Nineteenth Avenue Route, would cause such extreme property damages and other adverse effects on the area that it is not recommended for further consideration. Alternate D, the Great Highway Route, would serve less traffic than any other alternate studied, would not provide adequate traffic relief to other trafficways, and would not provide the over-all traffic services which future needs dictate. The traffic service disadvantages of the Great Highway Route indicate that this route cannot be recommended as a proper location for the Western Freeway. Alternate E, the Junipero Serra Extension, would be slightly less favorable than Alternate A or Alternate A-Modified from the standpoint of traffic services, would be more costly to construct than either of these two routes, and would cause substantially more right-of-way damages than Alternate A-Modified. Because of these disadvantages, Alternate E is not recommended.

The Sunset Boulevard Route, Alternate C, would be inferior to the Trafficways Plan Route, Alternate A, in providing necessary regional and local traffic services. Alternate A would serve about twice as much traffic as Alternate C, would provide more than twice as much traffic relief to principal north-south arterials in the Sunset District, would provide superior integration with other planned San Francisco freeways, and would be generally the most desirable route for the Western Freeway from the standpoint of traffic services. Right-of-way costs for Alternate C would be greater than right-of-way costs for Alternate A or Alternate A-Modified if the fair market value of affected City-owned property is included in the estimates. Alternate C would cause far more damages to public properties than the Trafficways Plan Route. Damages to private properties caused by Alternate C would be less than with Alternate A but slightly greater than required by Alternate A-Modified. In consideration of the relatively inferior quality of traffic services which would be afforded by the Sunset Boulevard Route, the heavy damages to public properties, and the extensive damages to private properties, Alternate C is not recommended.

Although Alternate C-Modified would greatly reduce damages to private properties required by other alternates, this route would require extensive encroachment on Golden Gate Park, disruption of Harding Park Municipal Golf Course, and more damages to public properties than any other route. If the fair market value of these affected public properties is included in the cost comparisons, right-of-way costs for Alternate C-Modified would be greater than right-of-way costs for Alternate A-Modified. The values of acreage in Golden Gate Park and other important public areas are, of course, intangible and indeterminable.

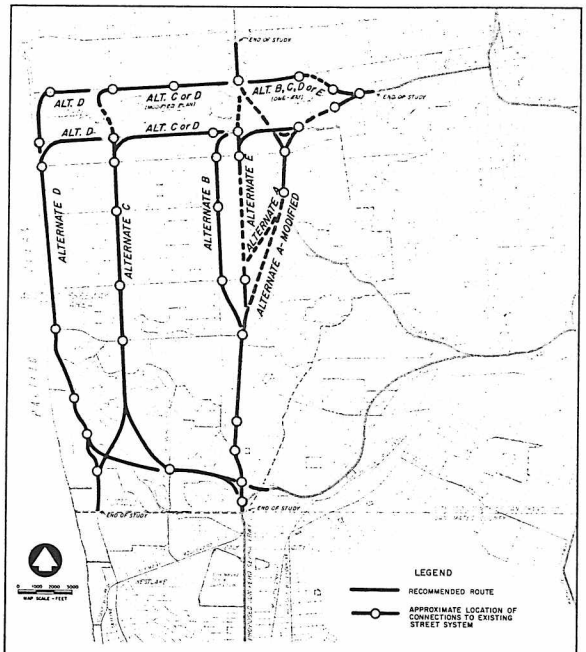
An objective evaluation of the advantages and disadvantages of the various feasible alternates leads to the inevitable conclusion that Alternate A-Modified is the most desirable route for the Western Freeway. The principal reasons for this conclusion are as follows:

(1) Alternate A-Modified would provide high quality regional traffic services - services which will be needed in future years.

(2) Alternate A-Modified would provide the necessary link to integrate the Junipero Serra Freeway, the Southern Freeway, the Park Presidio Freeway, the Panhandle Freeway and the Crosstown Freeway into an effective freeway system.

(3) Alternate A-Modified would effectively serve the Sunset District by separating heavy volumes of high speed through traffic from low speed local traffic, thus creating more travel convenience, improved local access, and increased safety on existing north-south arterials.

(4) Alternate A-Modified could be constructed with lower total right-of-way costs than any other alternate studied.



ALTERNATE ROUTES SELECTED FOR STUDY
SAN FRANCISCO WESTERN FREEWAY

Wilbur Smith & Associates

FIGURE 64

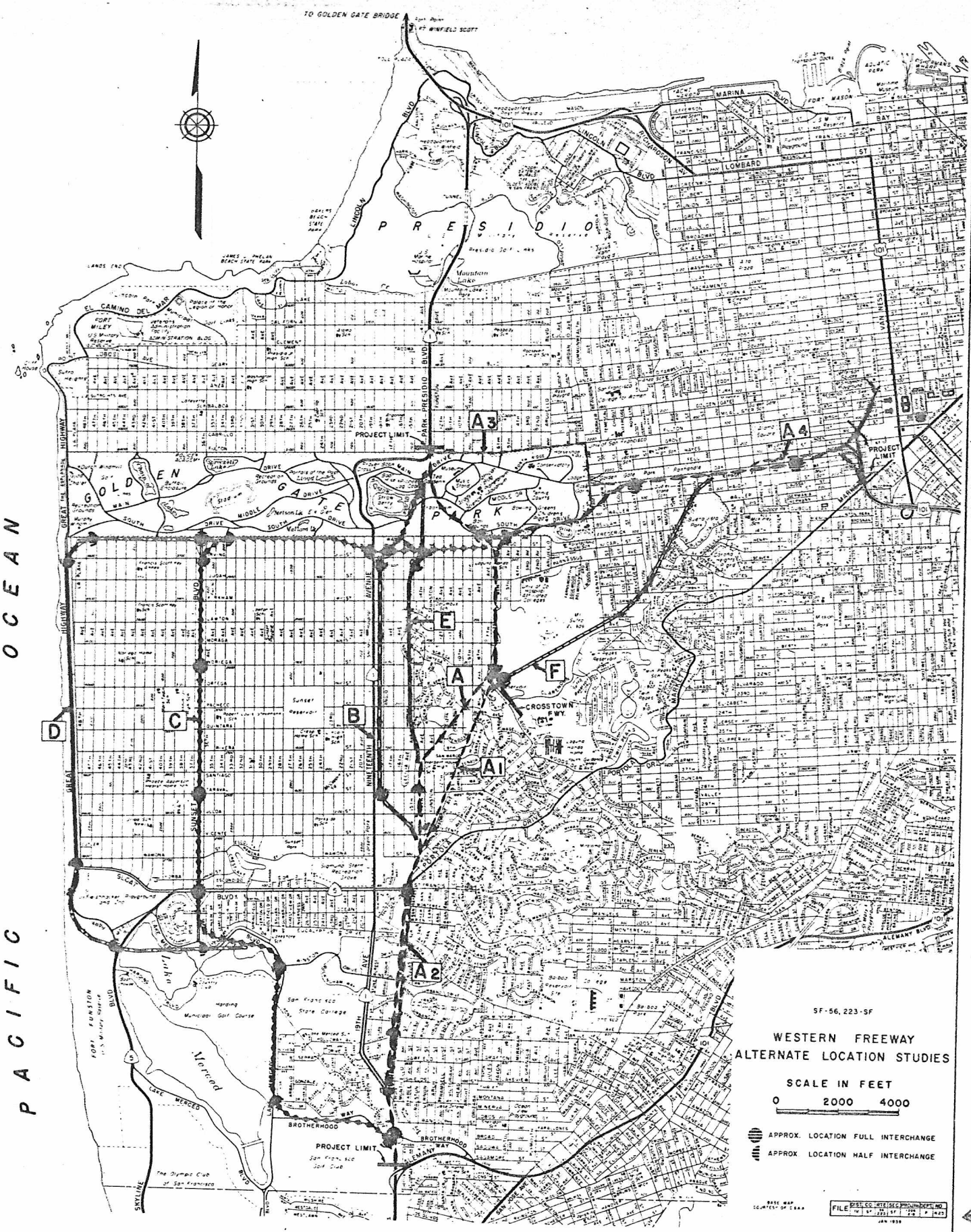
(5) Alternate A-Modified would cause less damage to private (taxable) properties than any other alternate studied except Alternate C-Modified; the latter route would require extensive encroachment on Golden Gate Park and about four times as much damage to public properties as required by Alternate A-Modified.

(6) Alternate A-Modified would provide benefits to justify the high costs of its construction. User benefits with Alternate A-Modified would be greater than with any other route except Alternate A which would cause greater property damages.

(7) Alternate A-Modified would cause the least possible neighborhood severance, damage to important public areas, and adverse effects on general community amenities.

Alternate A-Modified, which would include a 5,300-foot tunnel under Sunset Heights, would cost about $67,000,000 at 1958 cost levels. About $29,200,000 of this total is the estimated cost of the tunnel. There is ample precedent in the Bay Area for tunnels in highway construction. There is also ample justification for the added cost of this tunnel in the preservation of scores of residential properties which it makes possible. If Alternate A-Modified would provide only the direct user benefits summarized in this report, the high costs of its construction would be justified. However, the Western Freeway will also create many other beneficial effects on the local area and the entire region which further substantiates its desirability.

Based on the detailed analyses of traffic services, construction and right-of-way costs, property damages and intangible factors described in this report, it is recommended that the Western Freeway route designated herein as Alternate A-Modified be included in long range development plans for freeways in San Francisco.


TO GOLDEN GATE BRIDGE
Fort Point
Ft. WINFIELD SCOTT
MARINA BLVD
FORT MASON
BAY
LINCOLN BLVD
LOMBARD ST
P R E S I D I O
LANDS END
JAMES D. PHELAN BEACH STATE PARK
Mountain Lake
EL CAMINO DEL MAR
FORT MILEY
U.S. Military Reserve
VETERANS ADMINISTRATION BLDG.
Palace of the Legion of Honor
VAN NESS AVE
PROJECT LIMIT
PARK PRESIDIO BLVD
A3
A4
GOLDEN GATE PARK
GREAT HIGHWAY
OCEAN BEACH
MIDDLE DR
SOUTH DRIVE
Conservatory
Music Concourse
Stow Lake
Strawberry Hill
Spreckels Lake
Polo Fields
Kezar Stadium
Sharon Bldg.
Temple Emanu-El
Masonic Auditorium
Veterans Bldg.
Opera House
Symphony Hall
Civic Auditorium
Public Library
City Hall
Federal Bldg.
Hall of Justice
Mission Dolores
Mission High School
Mission Playground
Sunset Reservoir
Sunset Playground and Field
Sigmund Stern Recreation Grove
Funston Playground
Harding Municipal Golf Course
San Francisco State College
Merced
LAKE MERCED
The Olympic Club of San Francisco
SKYLINE BLVD
FORT FUNSTON U.S. Military Reservation
LAKE MERCED BLVD
SUNSET BLVD
19TH AVE
NINETEENTH AVE
JUNIPERO SERRA BLVD
PORTOLA DR
CROSSTOWN FWY.
MARKET ST
ALEMANY BLVD
BROTHERHOOD WAY
PROJECT LIMIT
San Francisco Golf Club
A
A1
A2
B
C
D
E
F
SF-56, 223-SF
WESTERN FREEWAY
ALTERNATE LOCATION STUDIES
SCALE IN FEET
0 2000 4000
APPROX. LOCATION FULL INTERCHANGE
APPROX. LOCATION HALF INTERCHANGE
BASE MAP COURTESY OF C.B.A.D.
FILE
JAN 1959

Jan 1959